Mozahidul Kabir

THE ENVIRONMENTAL SUSTAINABILITY OF SHARING ECONOMY

—*Contributing to Heal or Damage the Environment?*

Master's Thesis in Information Systems

Supervisors: Prof. Jozsef Mezei

Faculty of Social Sciences, Business and Economics, and Law (FSEJ)

Åbo Akademi University

Åbo 2023

ABSTRACT

Subject: Information Systems

Writer: Mozahidul Kabir

Title: Environmental Sustainability of Sharing Economy
—*Contributing to Heal or Damage the Environment?*

Supervisor: Prof. József Mezei

Abstract:

This study addresses sustainable resource management and minimizing environmental footprints by analyzing the growing popularity of the sharing economy as a possible solution for environmental concerns. This thesis systematically examines the environmental impact across various domains, highlighting positive outcomes such as enhanced resource efficiency, reduced carbon footprints, and community-building. Notably, the sharing economy's potential to foster sustainable transportation and circular consumption patterns is emphasized. However, the study also recognizes negative implications, including increased energy consumption and waste generation, especially in shared accommodations. The potential for traffic congestion, emissions from ride-sharing services, job displacement, and regulatory complexities are acknowledged as challenges to effective environmental management within the sharing economy.

The thesis underscores the need for a balanced assessment, considering both positive and negative aspects of the sharing economy. It emphasizes the importance of crafting comprehensive strategies to maximize positive environmental outcomes while mitigating adverse effects. Robust regulatory frameworks, energy-efficient practices, and waste management strategies are deemed necessary to harness the environmental potential of the sharing economy. As a socioeconomic system, this thesis also analyzes the socioeconomic aspect of the sharing economy based on the ESG framework.

In summary, the research illuminates the intricate interplay between the sharing

economy and the environment, emphasizing transformative forces like resource efficiency and sustainable transportation while acknowledging challenges like energy consumption, waste generation, and regulatory hurdles. The study aims to contribute valuable insights to the ongoing discourse, providing a foundation for future research and policy formulation in the realm of the sharing economy's environmental as well as socioeconomic impacts.

Keywords: Sharing economy, Environmental impact of sharing economy, Positive environmental impact of sharing economy, Negative environmental impact of sharing economy, social impact of sharing economy, Economic impact of sharing economy.

Date: 23.11.2023	**Number of pages:** 111 + VI

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

1 INTRODUCTION

The "sharing economy" concept refers to an economic framework wherein goods and services are shared among individuals rather than owned exclusively by one person. This means that instead of everyone needing to possess their own set of commodities, resources are utilized collectively, resulting in more efficient and sustainable use of assets.

The rise of technology and the widespread availability of the Internet have played a significant role in promoting and facilitating the sharing economy. These advancements have made connecting and sharing resources easier through online platforms and mobile applications. Individuals can interact, collaborate, and exchange goods and services conveniently and efficiently by leveraging these technological tools.

Figure 1: The Basic Sharing Economy Condition (Source: Truust, Online)

Within the sharing economy, various assets can be shared among community members. These assets include anything from tools and equipment to living spaces and vehicles. The essential characteristic of the sharing economy is that these assets are made temporarily available to others, allowing them to benefit from using the resource without owning it outright.

The sharing economy enables cost-effective resource usage by reducing the need for individuals to purchase and maintain their own separate set of goods and services. For example, instead of each household owning its own set of power tools, community members can share a common pool of instruments, reducing the overall number of devices needed and lowering the costs for individuals. Similarly, homeowners can rent out their properties when they are not using them, providing accommodation options for travelers, and generating income for the owner. Overall, sharing economy is a great tool to harnesses the power of technology and community cooperation to create a more sustainable and economically efficient resource allocation system.

1.1 Background

The environmental effects of the sharing economy, however, are a complex and dynamic issue that requires in-depth research. On one hand, proponents contend that by encouraging resource efficiency, lowering the need for new products, and reducing waste, the sharing economy may support environmental sustainability. For instance, using ride-sharing services may result in fewer automobiles on the road, which would cut carbon emissions and congestion. Similarly, the usage of home-sharing platforms may boost the use of the current housing stock, hence lowering the demand for new construction and the resulting resource consumption.

However, it has been argued that the environmental impact of the sharing economy may not always be favorable. For instance, increased utilization of ride-sharing services alongside private vehicles could potentially result in higher overall mileage, potentially leading to increased carbon emissions. Moreover, the reliance on digital platforms in the sharing economy may contribute to higher levels of electronic waste, energy consumption, and concerns about data privacy. Additionally, the informal nature of sharing economy transactions may result in a lack of control and

regulation, which could have detrimental effects on the environment, such as poor waste management, pollution, and depletion of natural resources.

1.2 Motivation

The sharing economy's effect on the environment is a crucial issue that needs further studies and analysis. Understanding the possible environmental effects of the sharing economy is crucial as it expands and changes. To objectively assess the environmental effects of the sharing economy, this research paper will study the body of previous work, analyze case studies, and consider different viewpoints.

It is crucial for governments, entrepreneurs, and consumers to understand how the sharing economy impacts the environment. To control the sharing economy and advance sustainable habits, policymakers must create rules supported by evidence. Businesses must be aware of the possible environmental hazards and benefits of the sharing economy and devise plans to reduce any harmful effects and take advantage of any favorable ones. To reduce their ecological footprint, consumers must be aware of the environmental effects of their sharing economy activities and make educated decisions.

By conducting a comprehensive analysis of relevant literature and compiling data from multiple sources, this thesis will add to the body of information already available on the environmental effects of the sharing economy. This study will offer useful insights for academics, practitioners, and policymakers interested in comprehending the environmental consequences of the sharing economy by reviewing existing research, finding knowledge gaps, and offering recommendations.

1.3 Research Question and Objectives

I actively participated in the food-delivery sharing economy model for one year, working an average of 40 hours per week. Based on personal experience, I observed that using a latest hybrid car resulted in a monthly fuel consumption of over 200 litters. Additionally, a significant number of individuals in the same profession used

older vehicles, which led to higher fuel consumption. Furthermore, I noticed that each delivery involved the use of packaging materials, including single-use plastic containers, as well as plastic bags and supplies such as disposable cutlery and tissue papers, which contributed to waste generation. These observations form the basis for the research question addressed in this study.

The primary objective of this thesis is to examine the environmental implications of the sharing economy model, determining whether it leads to a net positive or negative effect. The following research question will be explored throughout this research paper:

"What are the extents of the environmental impact associated with sharing economy practices, including collaborative consumption, peer-to-peer sharing, and access-based consumption, with regard to resource utilization, waste generation, and carbon emissions?"

As a socioeconomic system, the sharing economy impacts both economic and social functions. Additionally, the environmental impacts of the sharing economy are inseparably connected to the socioeconomic operations of sharing economy platforms. Therefore, the secondary objective of this thesis is to comprehensively investigate the most common positive and negative social and economic aspects of the sharing economy in alignment with the ESG framework. This study attempts to give an in-depth examination of the sharing economy's diverse socio-economic effects.

1.4 Structure of the Thesis

The structure of this thesis is outlined as follows:

Theoretical Framework: This chapter will provide a brief overview of the theoretical framework of the thesis. It will include a concise definition of the sharing economy, an explanation of the concept of sustainability as well as the exploration of the relationship between the sharing economy and sustainability.

Research Methodology: In this chapter, the chosen research method and case studies will be explained. The logic behind the selected method will be outlined, and the research and analysis process will be clarified.

Literature Review: This chapter will review relevant literature on the environmental impact of the sharing economy along with the social and economic impacts. Various sharing economy platforms will be analyzed to gain a comprehensive understanding of recent research. The purpose of this chapter is to provide background information on the phenomena and establish a foundation for the methodology.

Findings and Observations: This chapter will delve into the main findings and observations derived from the analysis conducted. Detailed explanations will be provided to offer a comprehensive understanding of the results.

Conclusion: The thesis will conclude with a discussion of managerial implications based on the findings. The study's limitations will be acknowledged, and suggestions for further research will be presented.

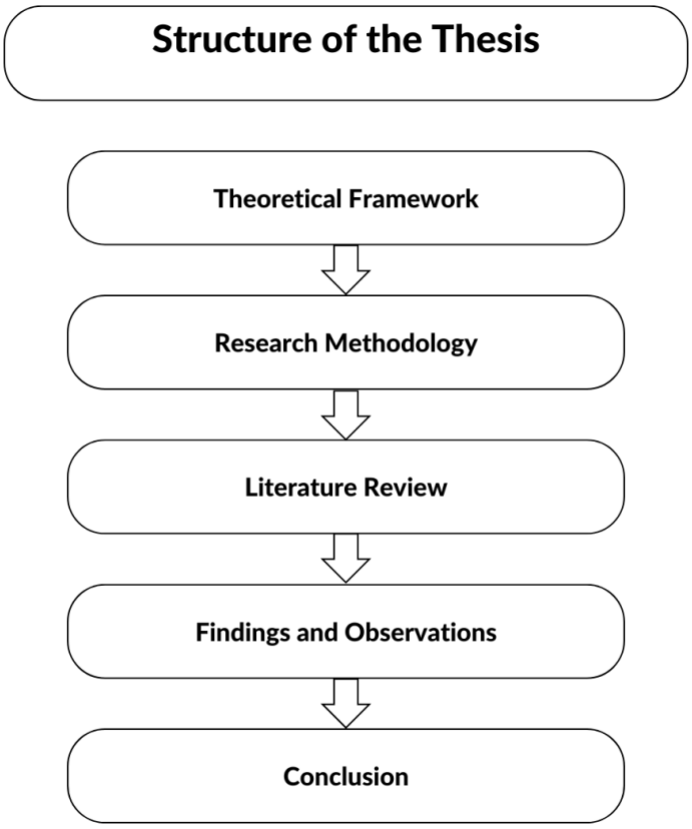

Figure 2: Structure of the Thesis

2 THEORETICAL FRAMEWORK

This thesis adds to the growing literature on the sharing economy and its sustainability. In other words, this thesis will contribute to the increasing literature on the environmental impact of sharing economy. It will explain how sharing economy is having its impact on the environment through the utilization of its platforms in various forms of services and businesses. Additionally, it also discusses how sharing economy is influencing socially and economically that also liable for direct or indirect environmental consequences.

2.1 The ESG Framework

ESG is an abbreviation that stands for environmental, social, and governance factors. It is a framework for evaluating the performance and business practices of an organization on a range of ethical and sustainable characteristics. ESG variables are seen to be significant for the profitability of long-term investments since they have an impact on a company's financial performance and reputation [72].

ESG framework defines as follows:

- **Environmental:** Focuses on the environmental effect of a business, including resource conservation, carbon footprint reduction, and energy efficiency. Sustainability is seen holistically by ESG, which goes beyond environmental concerns [73].
- **Social:** Evaluates a company's social responsibility efforts, considering issues related to human rights, diversity, employee relations, and community involvement [74].
- **Governance:** Evaluates the effectiveness of a company's leadership structure, internal controls, and decision-making transparency [75].

Although the idea of ESG investment first surfaced in the early 2000s, its origins date back many centuries. For example, religious traditions have long stressed the need of environmental responsibility and moral economic conduct [76].

Figure 3: The ESG Diagram (Source: AIS Environment, Online)

The modern concept of ESG took shape in the mid-2000s, driven by several factors, including:

- **Growing awareness of the environmental and social impacts of business activities:** Public concern about social and environmental concerns, including human trafficking and labour rights, as well as environmental challenges like pollution and climate change, rose in the 1980s and 1990s. Calls for firms to assume more accountability for their effects on the environment and society resulted from this [77].
- **The rise of socially responsible investing (SRI):** An approach to investment known as socially responsible investing (SRI) considers social and environmental performance in addition to financial rewards. ESG ratings and reporting standards came up because of SRI investors' increasing need for information about firms' ESG policies [78].
- **The publication of the UN Principles for Responsible Investment (PRI):** An association of institutional investors introduced the PRI in 2006; it is a set of optional guidelines for incorporating environmental, social, and

governance factors into investing choices. A greater number of institutional investors adopted ESG-related policies thanks to the PRI, which also helped to legitimize ESG investment [79].

Trillions of dollars are currently invested in ESG-focused funds, indicating that ESG is regarded as a mainstream investing approach. Banks, corporations, and other financial organisations are also taking an increasing amount of time to address ESG aspects [80]. Understanding the ESG framework is crucial to this thesis to fully understand the environmental sustainability of the sharing economy business model. Moreover, evaluating its conformity with the criteria specified in the ESG framework is pivotal for addressing the research questions.

2.2 The Sharing Economy

The sharing economy refers to a socio-economic system that enables individuals and organizations to share, trade, or rent resources, skills, or services, leveraging digital platforms to connect supply with demand, promoting sustainability and social interactions [4].

Cheng, Jin, and Huang [5] argue that the sharing economy encompasses a range of peer-to-peer transactions in which individuals leverage digital platforms to access, utilize, and exchange resources, fostering collaborative consumption and alternative economic arrangements.

According to Bardhi and Eckhardt [6], the sharing economy refers to an economic model characterized by the decentralized sharing, borrowing, or renting of goods, services, or assets among individuals or organizations, facilitated by technology-enabled platforms.

In brief, the sharing economy is an economic system where individuals can share their unutilized resources or services to earn income or support social causes. The sharing economy has experienced rapid growth and gained popularity due to advancements in information technology.

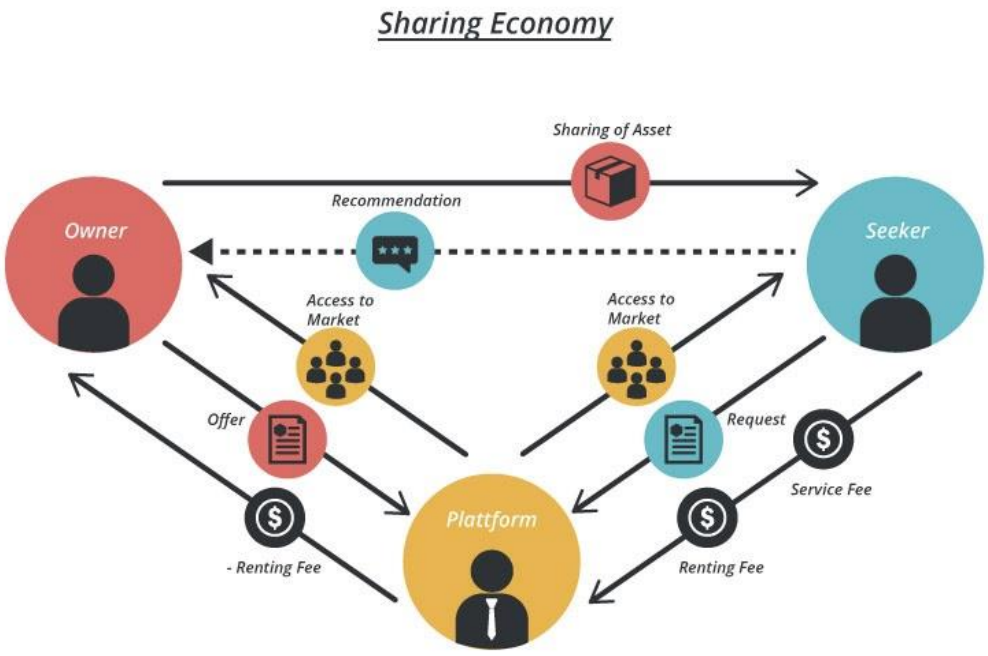

Figure 4: Sharing Economy Business Model (Source: Medium, Online)

2.3 The Concept of Sustainability

The concept of sustainability entails preserving ecological balance, economic development, and social progress to ensure the well-being of current and future generations [7].

The International Institute for Sustainable Development [8] defined sustainability as the ability to preserve and improve the well-being of both humans and the natural environment while also promoting social fairness and economic success.

According to the European Commission [9], Sustainability entails using resources responsibly and efficiently, reducing the impact on the environment, and promoting social inclusion and economic resilience for long-term viability.

In summary, sustainability entails responsible consumption of resources, fostering a delicate balance that minimizes environmental consequences while maximizing long-term socioeconomic benefits associated with those resources.

2.4 The Relationship

The relationship between the sharing economy and sustainability is associated with the three Es of sustainability, which are economy, ecology, and equity. To achieve sustainable development, the three Es of sustainability must be balanced. This implies that sustainability is attained when one's actions contribute to expanding the economy, promoting social fairness, and safeguarding the integrity of the environment for future generations [10].

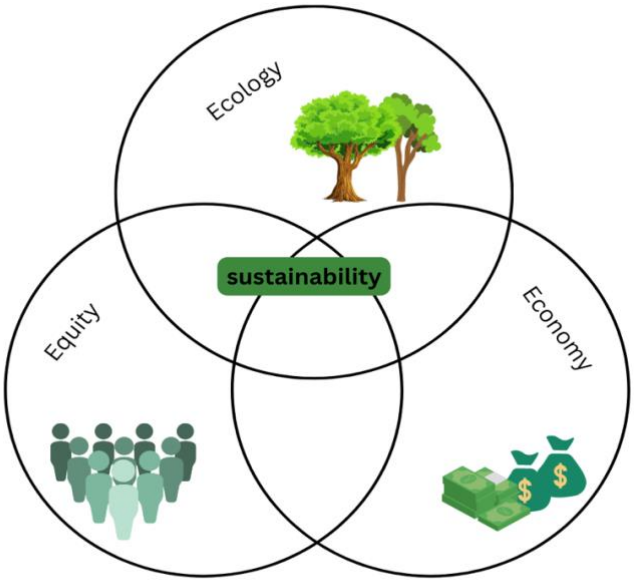

Figure 5: Three Es of Sustainability (Source: Brightest, Online)

The relationship between the sharing economy and sustainability is complex and may be considered from several angles. Sharing economy has the potential to enhance sustainability by allowing for more efficient resource utilization and waste reduction, resulting in reduction of environmental impact. Sharing or renting can assist to improve resource allocation and reduce total consumption by allowing the sharing or rental of underused assets or services, such as automobiles, lodging, or equipment. As a result, greenhouse gas emissions, energy consumption, and material waste may be reduced.

In addition, the sharing economy could contribute to sustainability by encouraging a transition from ownership to access, which promotes a more sustainable consumption pattern. Instead of consumers purchasing and owning products that are only occasionally utilized, sharing platforms allow people to access and utilize such resources on-demand, which can lead to a lower need for new manufacturing and lower ecological hazards.

However, it is vital to recognize that the long-term impact of the sharing economy depends on a variety of factors, including the specific habits and behaviors associated with sharing platforms. To ensure that the sharing economy contributes positively to sustainability goals it need to consider the ESG framework, and properly address issues such as labor rights, fair compensation, social equity, and the potential distribution of wealth and power within specific sharing platforms.

In summary, the sharing economy has the potential to enhance sustainability through the promotion of sustainable consumption habits such as increasing resource efficiency and reducing waste. However, it is important to exercise caution and ensure that the underlying practices and dynamics align with broader sustainability objectives, including social and economic considerations.

3 RESEARCH METHODOLOGY

Research methodology refers to the systematic and structured approach used in conducting research studies. It encompasses the principles, procedures, and techniques employed to gather, analyze, and interpret data to address research questions or objectives. The methodology chapter in this thesis, dissertation, or research paper provides a detailed explanation of the data collection and analysis methods used [50].

This section of the research paper will provide an in-depth exploration of the research methodology, incorporating insights from diverse academic papers and articles. Additionally, the chosen research methodology for this thesis will be elucidated and justified, ensuring its alignment with the research objectives.

3.1 Research Design

Research design encompasses the systematic plan, organizational structure, and strategic framework that provides comprehensive guidance throughout the entire lifecycle of a research project, starting from its conceptualization to the conclusive data analysis phase. It entails the judicious decision-making process concerning key elements such as research objectives, the judicious selection of primary or secondary research sources, meticulous sampling methodologies, precise data collection techniques, and rigorous data analysis procedures. Moreover, utmost emphasis is placed on ensuring a cohesive alignment between the employed methods and the overarching research aims and objectives [51]. The hallmark of a well-crafted research plan lies in its ability to effectively harmonize the chosen methodologies with the research goals, thereby facilitating the utilization of appropriate data analysis techniques that yield meaningful insights and robust outcomes.

A range of research designs exists, each tailored to fulfill distinct objectives within the research domain. In quantitative studies, notable research design types encompass experimental design, correlational design, and survey design. Experimental design entails deliberate manipulation of independent variables to assess their influence on dependent variables. Correlational design, on the other hand, endeavors to explore the interrelationship between variables without

intervening in their natural state. Survey design entails the systematic collection of data through questionnaires or interviews, allowing for comprehensive insights to be garnered. On the other hand, qualitative studies employ research design types such as case study design, ethnographic design, or grounded theory design. Case study design focuses on in-depth exploration of a specific case, while ethnographic design involves immersing oneself in the research context. Grounded theory design aims to develop theories based on data analysis [52].

The selection of an appropriate research design depends on the specific research question and objectives at hand. Various factors must be considered, such as the nature of the research, the variables under investigation, the desired degree of control over the study conditions, and the availability of necessary resources. A meticulously crafted research design plays a pivotal role in establishing a solid foundation for efficient data collection, rigorous analysis, and meaningful interpretation, thereby bolstering the reliability and validity of the research findings [53]. By conscientiously shaping their research design, researchers can optimize their studies and elevate the caliber and trustworthiness of their research outcomes.

3.1.1 Qualitative Research Method

Qualitative research methods encompass the systematic gathering and examination of non-numerical data, such as text, video, or audio, with the primary objective of comprehending concepts, opinions, or experiences. Its purpose is to delve deeply into a specific problem or foster innovative ideas for future research endeavors [54]. This approach finds widespread application within the humanities and social sciences, spanning disciplines such as anthropology, sociology, education, health sciences, and history [54].

An inherent characteristic that sets qualitative research apart is its emphasis on comprehending subjective experiences and the significance ascribed to phenomena. This approach is frequently employed in situations where there is limited knowledge about a specific topic or when researchers seek to generate fresh theories or refine existing ones [55]. Rather than focusing on establishing causal connections or relationships among variables, qualitative research strives to provide intricate descriptions of phenomena [55]. Some commonly employed qualitative research

methods include participant observation, ethnographic interviewing, and content analysis [55].

In the field of qualitative studies, researchers employ diverse methodologies to collect data. These encompass techniques such as conducting interviews, observing behaviors, analyzing documents, and engaging in immersive fieldwork. Subsequently, the collected data undergoes meticulous analysis through methods such as thematic analysis, content analysis, or grounded theory. This analytical endeavor aims to unveil patterns, themes, and underlying meanings embedded within the data, with the ultimate objective of cultivating a profound and comprehensive comprehension of the research topic [54].

In a broader perspective, qualitative research methods present a valuable avenue for comprehending the intricate dynamics of human behavior and social phenomena. By diligently collecting and analyzing non-numerical data, researchers can attain profound insights, forge novel theories, and contribute to a more profound comprehension of diverse disciplines, spanning the humanities, social sciences, and health sciences. Through the adept utilization of suitable tools and techniques, researchers can conduct rigorous qualitative research, thereby unraveling rich and nuanced understandings of the subject matter under investigation.

3.2 Methodology

This thesis has conducted a comparative study of the positive and negative environmental impact of sharing economy. Data has been collected from online articles, verified for accuracy, and compiled the data into an informative and comprehensible format for everyone who reads this thesis. The research was concentrated on analyzing data from journal articles, conference papers, and web pages from previous studies. In this thesis, I was focused one two key attributes:

1. Domains and or platforms that are based sharing economy model,
2. The positive and negative environmental impact of each domain

The literature review methodology was applied to extract existing knowledge and analyze it in this comparative study to determine whether sharing economy

platforms is contributing to heal the environment or contributing to damage it even more. The following four stages were followed throughout the thesis.

- Domain search according to the formulated research questions (Section 1.3)
- Literature search
- Data assessment
- Analysis, Synthesis, and Interpretation

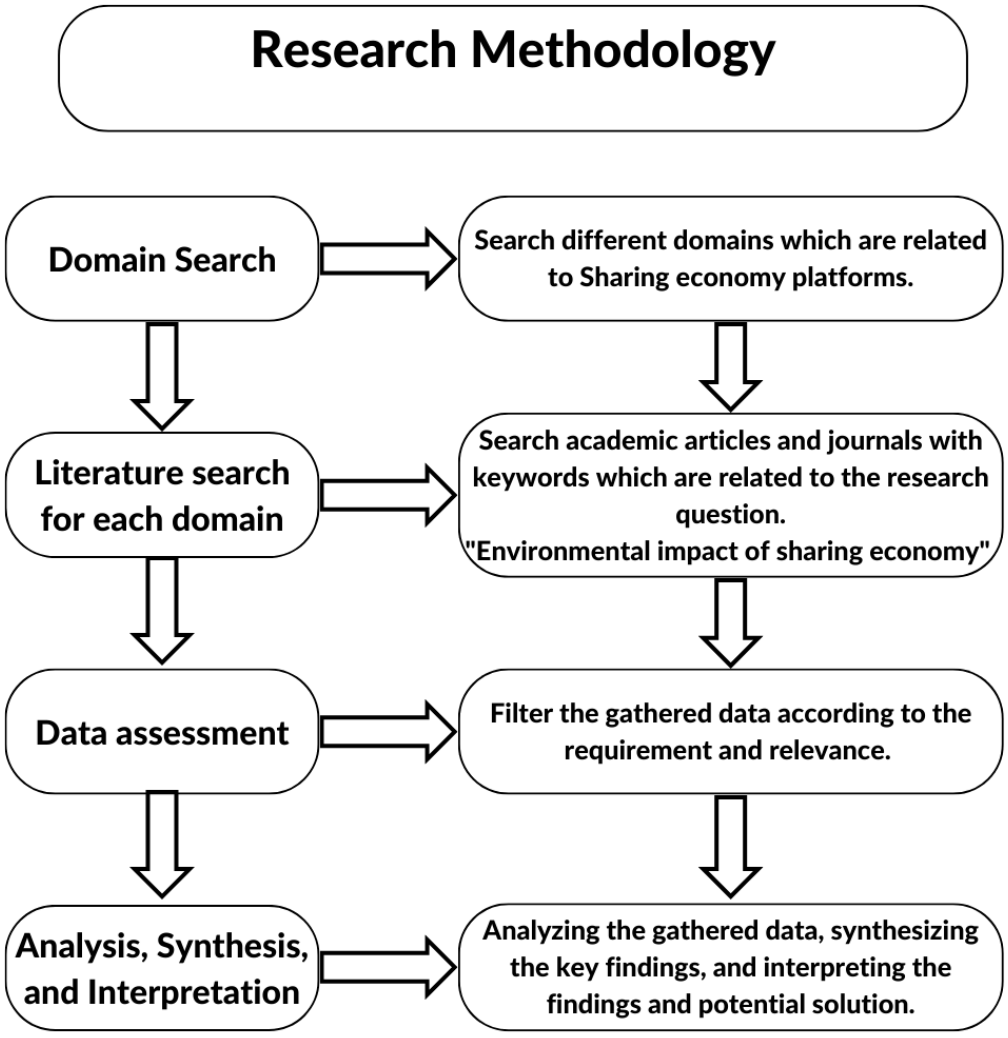

Figure 6: Research Methodology

Domain Search: In this section of the thesis, a domain search was conducted to identify the internet domains that engage in the sharing economy. The search encompassed a

wide range of English language sources without any geographical restrictions. The search was performed using various keywords such as "The sharing economy Platforms," "The sharing economy domains," "Businesses based on sharing economy," "Services based on sharing economy," and "Sharing economy-based apps." The results revealed that the sharing economy is currently a highly popular topic, with numerous articles and webpage links available. For the purpose of this study, a selective approach was taken, focusing on the first 10 to 15 links to extract the required information. The identified domains associated:

Domains	Services	Examples
Accommodation	Providing short-term accommodation.	Airbnb, Flipkey, Homestay Anywhere etc.
Transportation	Ride sharing, short-term renting services for car, bikes, e-scooters etc.	Uber, ZipCar, LimeBike, Tier, Voi, Föli Bikes etc.
Food- delivery	Door to door food and commodity delivery services.	DoorDash, Wolt, Zomato, FoodPanda/Foodora, UberEats etc.
Other	Workspace-sharing, Storage-sharing, Goods-sharing, skill-sharing tutorin, task outsourcing etc.	Neighbor.com, Freecycle, Facebook Marketplace, Skillshare, Udemy, Fiverr, Upwork etc.

Table 1: Popular sharing economy domains

Literature search: During this stage, extensive research was conducted to gather relevant literatures and address the research inquiries. A comprehensive search was performed in English, encompassing academic publications available in journal articles, conference papers, and web pages derived from prior research endeavours. The search process was not limited by geographical constraints, resulting in the retrieval of

academic articles from various locations across the globe. Throughout the search, specific keywords were diligently taken into consideration to enhance the search accuracy and comprehensiveness. Some key words were research topic specific, and some were domain specific. The keywords were as follows: “Environmental impact of sharing economy”, “Ecological impact of sharing economy”, “Positive environmental impact of sharing economy”, “Negative environmental impact of sharing economy”, “Positive environmental impact of sharing economy in accommodation sector”, “Negative environmental impact of sharing economy in accommodation sector”, “Positive environmental impact of sharing economy in transportation sector”, “Negative environmental impact of sharing economy in transportation sector”, “Positive environmental impact of sharing economy in food-delivery sector”, “Negative environmental impact of sharing economy in food-delivery sector”, "Sustainable impact of the sharing economy", "Environmental effects of sharing economy platforms", "Ecological implications of the sharing economy", "Environmental sustainability and the sharing economy", "Sharing economy and ecological efficiency", "Environmental benefits and drawbacks of sharing economy", "Environmental impact assessment of the sharing economy".

The preeminent search engine, "Google Scholar," was utilized to retrieve pertinent articles. Following a query utilizing the aforementioned keywords, the average aggregate search results returned 17,100 articles related to the environmental impact of the sharing economy in the accommodation sector within the time frame spanning from 2015 to 2023. Similarly, 16,600 articles were obtained on the environmental impact of the sharing economy in the transportation sector from 2019 to 2023, and 15,000 articles were found concerning the environmental impact of the sharing economy in the food-delivery sector within the same time frame. It is noteworthy that there was a dearth of dedicated literature specifically addressing sectors other than the aforementioned three. While some references to other sectors were made in certain articles, additional sectors were identified for inclusion in this thesis based on their relevance to the environmental impact. Nevertheless, this extensive volume of articles is not comprised solely of unique content. Numerous duplicates exist, and most articles lack relevance to the thesis topic.

Data Assessment: Due to the abundance of available articles, the initial exploration focused on the first ten pages of Google Scholar search results for relevant articles. Data was filtered to get the most accurate and relevant articles at this stage.

After a comprehensive analysis, I considered the following aspects of the articles to select the final set for the literature review:

- Title of the article
- Year of publication
- Source and type of document
- Abstract of the article
- Language the article
- Keywords used in the article.

The included articles evaluated an evaluation process to ensure compliance with the specified inclusion and exclusion criteria.

The evaluation process included carefully examining the publication's metadata, such as the article title, search terms, and summary, based on the specified criteria. Articles with titles unrelated to the research questions or containing irrelevant information were excluded. In cases where the article's metadata did not provide sufficient insight into its content, a thorough examination of the entire text was conducted. Only articles that directly addressed the research questions were selected for further assessment. Publications lacking explicit mention of the research questions in their meta-information and content were excluded.

By carefully considering the meta-information and formulating appropriate inclusion and exclusion criteria, relevant publications pertaining to the research problems were identified. The final selection of articles underwent thematic analysis, employing preferred reporting elements.

The inclusion and exclusion requirements are outlined as follows:

- **Inclusive requirements:**
    - Articles focusing on sharing economy and its environmental impacts,
    - Articles that describe positive impacts and negative impacts. of sharing economy,

- The articles are included that are focused on the environmental impacts of sharing economy in different domains such as Accommodation, Transportation, Food-delivery, and so on.
- Articles published between 2015 and 2023 were assessed to use updated information.

- **The exclusive requirements:**
  - Wikipedia articles,
  - The content of the articles is irrelevant to the research questions,
  - Articles that are not conducted in English while having an English abstract,
  - Articles published before 2015.

Analysis, Synthesis, and Interpretation: A complete collection and summary of significant data were carried out at the end of the research process. The data was meticulously gathered, organized, and contrasted with supporting evidence obtained from the included articles. This rigorous approach ensured the data's reliability and accuracy.

Once the data was gathered, it was presented in a manner that prioritized clarity and consistency, making it accessible and valuable to the existing body of literature. By presenting the data in a comprehensible manner, the research significantly contributes to the knowledge and understanding of the subject matter.

Furthermore, the gathered data underwent a thorough analytical procedure to ensure its correctness, usability, and comprehensibility for all thesis readers. The analysis entailed applying relevant analytical techniques and frameworks to the data to extract useful insights and findings.

Throughout the thesis, the final articles were meticulously reviewed and synthesized to effectively integrate their key findings and contributions into each paragraph. This synthesis process involved rephrasing and contextualizing the primary findings of the studies within the broader investigation. By doing so, the synthesis aimed to provide meaningful connections and insights that directly addressed the research questions at hand.

Ultimately, this process of synthesizing the research findings and applying them to the study allowed for the exploration of potential solutions and the generation of valuable insights that contribute to the advancement of knowledge in the field.

4 SYSTEMATIC LITERATURE REVIEW

A systematic literature review is a method of studying and interpreting all available data on a given research subject that is complete and comprehensive. It entails a methodical and repeatable technique for identifying, selecting, and synthesizing relevant studies. The process of a systematic review involves conducting an in-depth investigation across numerous sources, including published and unpublished research, and critically evaluating the quality and relevance of the identified material. Systematic reviews give a complete overview of the available information on a certain issue by combining the findings of various research. On the evidence hierarchy pyramid, they are regarded as the highest level of evidence [11].

This chapter will review relevant literature on the environmental impact of the sharing economy. Various sharing economy platforms will be analyzed to gain a comprehensive understanding of recent research. The purpose of this chapter is to provide background information on the phenomena and establish a foundation for the methodology.

Domains	Publication Year	Number of Literature Reviewed
Accommodation	2015 - 2023	9
Transportation	2019 - 2023	8
Food-delivery	2019 - 2023	8
Others	2015 - 2023	11

Table 2: Overview of literature review

4.1 Overview of existing literatures

The exact number of existing literatures on the environmental impact of the sharing economy is difficult to determine, as it continues to grow with ongoing research and publications. The topic has gained significant attention in recent years, and

numerous studies, articles, and reports have been published on various aspects of the environmental impact of the sharing economy.

A search in academic databases and research platforms would provide a substantial number of relevant publications. However, it is important to note that the accessibility and availability of literature may vary depending on factors such as access to databases and publication subscriptions.

The sharing economy is a rapidly growing and contemporary phenomenon that greatly influences our daily lives and the environment. Extensive literature exists on the environmental impact of the sharing economy, providing valuable insights into its effects on environmental sustainability. While the sharing economy is commonly linked with positive environmental outcomes, it is important to recognize that there are also potential negative consequences. In this overview, we will explore both the positive and negative environmental impacts associated with the sharing economy, based on key themes and findings from existing literature.

To obtain a comprehensive and up-to-date understanding of the existing literature, I conduct a systematic literature review and consult relevant academic databases such as Google Scholar, JSTOR, ScienceDirect, PubMed, and so on. These platforms provide a wealth of scholarly articles, conference papers, theses, and other sources related to the environmental impact of the sharing economy.

4.2 Sharing Economy in the Accommodation Sector

In this chapter, I conducted a comprehensive review of nine academic articles focusing on the sharing economy within the accommodation sector. The primary objective was to analyze the most recent literature available, including publications between 2015 and 2023. Notably, eight out of the nine articles were published specifically between 2019 and 2023. This review aimed to examine both the positive and negative environmental effects associated with sharing economy platforms in the accommodation sector.

Figure 7: Popular Accommodation Rental Platforms (Source: ClatsopNews, Online)

4.2.1 Introduction

The sharing economy has transformed several businesses, including accommodation. This paper investigates the environmental effects of the sharing economy in the accommodation sector, considering both its positive and negative aspects. By analyzing various studies, we gain valuable insights into the environmental implications of this emerging economic model.

On the positive side, the sharing economy in accommodation can result in more efficient resource usage and less waste. It allows for the reuse of existing spaces and properties, decreasing the demand for new structures and the environmental effect connected with them. However, there are some drawbacks to consider. The fast expansion of sharing platforms has the potential to increase energy consumption and carbon emissions. It may also cause problems with waste management and strain local infrastructure in major tourist areas.

We can create a thorough understanding of the environmental consequences of the sharing economy in the accommodation sector by evaluating both the good and negative aspects, allowing us to make educated decisions and support sustainability in this growing economic model.

4.2.2 Positive Environmental Impacts

The sharing economy in the accommodation sector has several positive environmental impacts. After reviewing the selected literatures, I have identified several positive aspects of the sharing economy in the accommodation sector. They are as follows:

4.2.2.1 Resource Efficiency and Waste Reduction

By allowing access-based consumption rather than ownership-based consumption, the sharing economy enhances resource efficiency [16]. Individuals can use current resources more efficiently by sharing lodgings, minimizing the need for additional production and waste generation [16]. This shift toward sharing underutilized assets contributes to more sustainable use of resources, potentially reducing the rapid depletion of scarce natural resources.

Here are two examples of how the sharing economy contributes to resource efficiency and waste reduction:

- Accommodation sharing can reduce the need for new hotels, saving resources and reducing the environmental impact of tourism.
- Accommodation sharing extends the lifespan of existing homes by generating income for homeowners, keeping homes in good repair, and revitalizing neighborhoods.

4.2.2.2 Reduced Carbon Footprint

The potential decrease in greenhouse gas emissions is a key positive environmental impact of the sharing economy in the accommodation sector. Sharing accommodations allows for more efficient use of existing infrastructure, thereby reducing the need for the construction of new buildings and their associated carbon footprint [20]. The sharing economy can help to mitigate climate change by optimizing the utilization of existing spaces.

Here is an example of how the sharing economy contributes to reduced carbon footprint:

- Accommodation sharing can also contribute to decreased energy consumption and help reduced carbon footprint. When travelers stay in

existing homes and apartments, they are typically using spaces that are already heated, cooled, and lit.

4.2.2.3 Social and Behavioral Change

The sharing economy has the potential to influence consumer behavior toward more environmentally friendly activities. According to research, the sharing economy promotes a transition from a traditional ownership-based economy to one that values shared access and greater usage of already-produced commodities [19]. The sharing economy can help minimize overconsumption and its associated environmental impacts by encouraging access-based consumption.

Here are examples of how the sharing economy contributes to social and behavioral change:

- The sharing economy promotes environmental responsibility by encouraging shared ownership and community-based conservation efforts.
- The sharing economy fosters sustainable consumption habits by providing eco-friendly accommodation options and raising awareness of sustainable practices.

4.2.2.4 Community Building and Local Connections

Sharing economy platforms frequently concentrate on creating local connections and promoting engagement. This focus on local interactions has the potential to cut transportation emissions. For instance, accommodations shared through peer-to-peer platforms may be located in residential neighborhoods rather than concentrated tourist areas, encouraging visitors to explore and support local businesses within walking or biking distance [12]. By promoting localized experiences, the sharing economy can contribute to minimizing the environmental impact of transportation as it is associated with the accommodation sector too.

Here are examples of how the sharing economy contributes to community building and local connections:

- By staying in residential neighborhoods and supporting local businesses, travelers can reduce their transportation emissions and contribute to local communities.

- Sharing accommodation platforms promotes sustainable travel by facilitating host-guest interactions and encouraging participation in community-based activities.

Beside the above-mentioned positive aspects, several positive aspects of the sharing economy in the accommodation sector have been identified in several studies during this research. These include enhanced utilization of existing resources, increased affordability and accessibility for consumers, and the potential for fostering social connections and cultural exchange among individuals. By leveraging the sharing economy, the accommodation sector can promote sustainability, optimize resource allocation, and provide unique and personalized experiences for both hosts and guests.

4.2.3 Negative Environmental Impacts

Upon reviewing the selected literature, it has come to my attention that although the sharing economy in the accommodation sector has various positive aspects, it also entails several negative environmental impacts that require careful consideration. In this chapter of the thesis, I explore and address the primary negative environmental impact highlighted in the selected studies.

4.2.3.1 Increased Energy Consumption

One of the primary concerns concerning the sharing economy in the accommodation industry is the potential spike in the consumption of energy. Short-term rentals facilitated by sharing economy platforms may lead to higher energy demand compared to traditional long-term rentals due to increased turnover and frequent cleaning [13]. This increased energy use can offset some of the potential environmental benefits associated with resource efficiency.

Here are examples of how the sharing economy contributes to increased energy consumption:

- The sharing economy's reliance on short-term rentals can lead to an increase in energy consumption due to increased turnover and cleaning frequency.
- The decentralized nature of the sharing economy can result in a lack of standardization in energy efficiency practices among hosts.

4.2.3.2 Rebound Effect

The rebound effect outlines how people spend the additional income they obtain by sharing or utilizing a space, product, or service. If additional income from sharing accommodations is spent on energy-intensive activities or goods, it can diminish the positive environmental impacts of the sharing economy [20]. It is important to consider how consumer behavior may offset the potential gains in resource efficiency and waste reduction.

Here are examples of how the sharing economy contributes to increased rebound effect:

- The increase in income from participating in the sharing economy could lead to the purchase of energy-intensive appliances, increased travel, or participation in leisure activities with a higher carbon footprint, negating the environmental benefits of sharing.
- The cost savings from using shared accommodations could encourage more frequent or longer vacations, leading to an increase in transportation emissions from flights, car rentals, or other travel modes.

4.2.3.3 Regulatory Challenges and Enforcement

The sharing economy operates in a regulatory context that is frequently complicated and lacks clear norms for environmental standards. Accommodation-sharing companies may have challenges in regulating environmentally conscious practices among their vast network of providers. The absence of standardization and overview can lead to inconsistencies in environmental performance, posing challenges in achieving consistent positive environmental outcomes across the sector [63]. Therefore, addressing these issues and implementing effective measures for environmental responsibility are crucial for promoting sustainable practices within the sharing economy in the accommodation sector.

Here are examples of how the sharing economy contributes to regulatory challenges and enforcement:

- The sharing economy facing regulatory challenges due to the implementation of clear guidelines for energy efficiency, waste management, and sustainable practices among hosts.

- The sharing economy needs to enhance enforcement mechanisms by incorporating environmental performance criteria into rating systems and reviews, conducting regular inspections, and implementing incentive programs and penalties.

4.2.3.4 Waste Management Challenges

Short-term rentals facilitated by the sharing economy have the potential to contribute to an increase in waste generation, especially in popular tourist destinations. The frequent turnover of guests often leads to a higher consumption of disposable items such as single-use toiletries and food packaging. In the absence of adequate waste management infrastructure and practices, this surge in waste can put significant pressure on local waste systems, potentially leading to environmental degradation. To minimize these negative effects, effective waste management methods that encourage waste reduction, recycling, and appropriate disposal practices in places substantially impacted by the sharing economy must be developed and implemented everywhere, especially in popular tourist destinations.

Here are examples of how the sharing economy can overcome challenges for waste management:

- The accommodation-sharing sector can minimize waste generation by providing reusable amenities, encouraging guests to bring their own toiletries, and implementing composting programs.
- The accommodation-sharing sector can enhance waste management by partnering with local waste collection services, providing clear waste disposal guidelines, and promoting waste reduction initiatives.

While the sharing economy has brought positive changes to the accommodation sector, it also presents above mentioned negative impacts. Accommodation sharing platforms can contribute to negative environmental impacts in several other ways apart from the above-mentioned impacts. In many countries such as France, Germany, Italy, Malaysia, USA, and so on banned or got extremely restricted accommodation sharing platform like Airbnb in their major cities due to several reasons such as neighbors' complaints, damage of properties, threats to the local hotel and tourism business and so on [34].

4.2.4 Conclusion

The sharing economy in the accommodation sector has both positive and negative environmental consequences. On the positive side, it promotes resource efficiency, reduces waste generation, and has the potential to reduce greenhouse gas emissions. The sharing economy can promote sustainable consumption habits and create local ties by maximizing the use of available resources. However, increasing energy consumption, the rebound effect, regulatory difficulties, and waste management concerns should not be neglected.

Figure 8: Accommodation Sharing Platforms (Source: Online)

Collaboration among policymakers, sharing economy platforms, and users is vital for fully leveraging the good environmental implications of the sharing economy while limiting the negative aspects. Implementing energy-efficient methods, encouraging sustainable spending, establishing environmental norms, and supporting waste management programs are all critical steps toward achieving a more sustainable sharing economy in the accommodation sector.

Finally, the sharing economy has the potential to generate positive environmental change in the accommodation sector. We can encourage a more sustainable and ecologically responsible sharing economy by capitalizing on the advantages while tackling the challenges.

4.3 Sharing Economy in the Transportation Sector

In this chapter, I conducted a comprehensive review of eight academic articles focusing on the sharing economy within the transportation sector. The primary objective was to analyze the most recent literature available. Notably, all eight articles were published specifically between 2019 and 2023. This review aimed to examine both the positive and negative environmental effects associated with sharing economy platforms in the transportation sector.

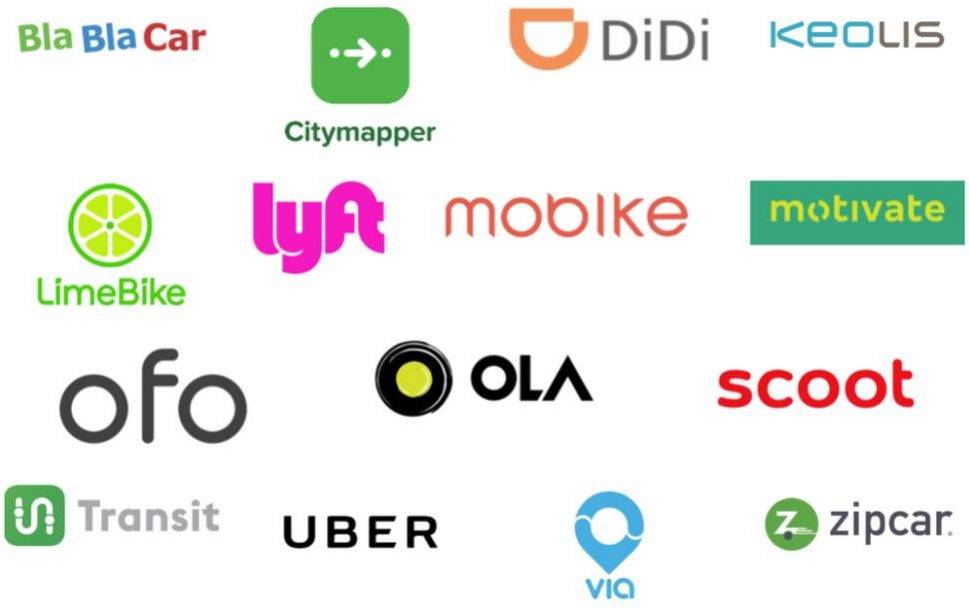

Figure 9:Popular mobility Rental Platforms (Source: Autogrow, Online)

4.3.1 Introduction

The sharing economy has transformed transportation by encouraging resource sharing and decreasing individual ownership. This chapter of the thesis analyzes the environmental impacts of the sharing economy in the transportation sector. It investigates the impact of the sharing economy on sustainable behaviors and environmental effects.

The sharing economy has positively impacted the environment by improving resource usage and reducing congestion and emissions per passenger. However, it can also lead to an increase in total vehicle Kliometers travelled and disrupt traditional public transportation systems. Understanding the environmental effects of the sharing economy in transportation is crucial for promoting sustainable practices in the industry.

By comprehensively assessing the environmental impacts of the sharing economy in transportation, policymakers, industry stakeholders, and researchers can work together to devise effective measures that maximize the positive outcomes while addressing the potential drawbacks. This understanding serves as a foundation for implementing regulations, incentives, and sustainable practices that foster a greener and more sustainable transportation industry.

4.3.2 Positive Environmental Impacts

The sharing economy's positive impact on the environment in the transportation sector may be seen in a variety of ways. This section summarizes major findings from the selected studies that demonstrate these positive effects. These findings show how the sharing economy has aided in the development of sustainable practices and environmental benefits in the transportation sector.

4.3.2.1 Reduced Use of the Automobile

According to a study [21], shared mobility services such as bike-sharing, car-sharing, e-scooters, and autonomous buses have the potential to reduce car usage. These services offer alternative means of transportation, prompting people to depend less on their personal vehicles. As a result, this shift can lead to a decrease in carbon emissions and alleviate issues related to traffic congestion. The study

suggests that the availability of these alternatives may enhance the environment and improve the efficiency of urban transportation networks.

Here are examples of how the sharing economy contributes to reducing the use of automobiles:

- Bike-sharing programs can reduce car usage and emissions by making bicycles readily available in urban areas.
- Car-sharing services can reduce car ownership and emissions by providing access to a shared fleet of vehicles for various purposes.

4.3.2.2 Resource Optimization

The sharing economy promotes efficient utilization of transportation resources [24]. Individuals and corporations may share automobiles, bikes, and e-mobilities by using sharing platforms, resulting in increased resource efficiency. This method reduces the need for additional manufacturing while also decreasing the environmental impact of production and disposal. The sharing economy enables sustainable resource management and a greener environment by encouraging sharing rather than private ownership.

Here are examples of how the sharing economy contributes to resource optimization:

- Sharing vehicle platforms promotes resource optimization by encouraging car sharing for occasional needs and incorporating vehicle sharing into multimodal transportation.
- Shared mobility services, such as e-cargo bikes and e-scooters, can optimize resource utilization in last-mile logistics by partnering with e-commerce and delivery companies, establishing designated loading, and unloading zones, and providing incentives for shared mobility usage.

4.3.2.3 Enhanced asset utilization

The sharing economy actively fosters the collective use of unused assets [15]. Shared mobility services enhance asset utilization and reduce the need for additional resources by utilizing the potential of unused assets such as empty seats in cars, underused parking spots, underutilized bikes, and so on. This method enables more

sustainable use of existing assets and helps to reduce environmental impact. The sharing economy enhances effective resource management and environmentally responsible activities by encouraging sharing and decreasing production and waste.

Here are examples of how the sharing economy contributes to enhancing asset utilization:

- Carpooling and ride-hailing services can reduce traffic congestion, fuel consumption, and associated environmental impacts by encouraging the sharing of empty seats in vehicles.
- Smart parking systems can reduce time spent searching for parking, minimize congestion, and promote more efficient use of existing parking infrastructure by providing real-time parking availability information and utilizing dynamic pricing.

4.3.2.4 Sustainable Tourism

The sharing economy has made significant contributions to promoting sustainable tourism practices, particularly within the transportation sector [17]. The sharing economy minimizes the need for new hotels and automobiles by enabling peer-to-peer sharing of accommodations and transportation services, resulting in a reduced environmental impact. This shift in the tourism industry leads to decreased energy consumption, waste generation, and land development, as existing resources are optimally utilized. The tourism sector may develop environmentally conscious behaviours and contribute to a more sustainable and ethical approach to tourism by embracing the sharing economy.

Here are examples of how the sharing economy contributes to sustainable tourism:

- Promoting bicycle-friendly infrastructure can reduce reliance on cars, lower carbon emissions, and promote a more active and environmentally conscious travel experience for tourists.
- Facilitating public transportation access for tourists can reduce their reliance on private vehicles and encourage more sustainable travel choices by enhancing public transportation networks, providing real-time information, and offering integrated ticketing options.

4.3.2.5 Behaviour Change

The sharing economy plays a crucial role in promoting sustainable transportation behaviours [22]. The development of sharing platforms, as well as advances in information and communication technology (ICT), have significantly enhanced the accessibility of shared mobility services. This effortlessness, along with consumer awareness of the environment, encourages a transition away from personal automobiles and toward shared forms of transportation. As a result, this transition leads to reduced emissions and improved air quality, as fewer individual vehicles are on the road. By facilitating the adoption of sustainable transportation practices, the sharing economy contributes to mitigating environmental concerns and fostering a greener future.

Here are examples of how the sharing economy contributes to behaviour change:

- Implementing gamification and rewards programs can make shared mobility services more engaging and encourage users to adopt sustainable transportation practices.
- Promoting multimodal transportation, first/last-mile solutions, and creating dedicated shared mobility zones can make shared mobility more attractive and convenient for users.

In addition to the mentioned benefits, multiple studies conducted during this research have identified various positive aspects of the sharing economy in the transportation sector. These include improved utilization of city bikes and personal bikes, as well as increased usage of e-scooters, and so on. By utilizing the potential of the sharing economy, the transportation sector can improve sustainability, optimize resource utilization, and facilitate economic development for both service providers and consumers.

4.3.3 Negative Environmental Impacts

Although the sharing economy in the transportation sector presents several positive environmental outcomes, it is crucial to acknowledge and address its potential negative impacts. This chapter of the thesis explores and addresses the primary negative environmental impact highlighted in the selected studies.

4.3.3.1 Rebound Effect

Rebound effects may counterbalance the positive impact of the sharing economy [20]. The rebound effect outlines how consumers might decide to consume extra products or services which increase their overall impact on the environment after saving money by using sharing services. For instance, individuals might use the money saved from sharing transportation to purchase other carbon-intensive products, thereby nullifying the emissions reduction achieved through sharing practices.

Here is an example of how the sharing economy contributes to increased rebound effect:

- Lower car-sharing costs may lead to increased vehicle ownership, usage for non-essential trips, and reduced incentives for adopting sustainable alternatives.

4.3.3.2 Overconsumption of Resources

While the sharing economy enhances resource efficiency, under certain circumstances it can also lead to increased consumption. As stated in [17], the convenience of access as well as expenses provided by ride-sharing platforms might lead to overuse and overconsumption of transportation services. This increasing demand may result in more automobiles on the road, contradicting the primary objective of decreasing congestion and pollution.

Here are examples of how the sharing economy may lead to overconsumption of resources:

- Convenience and affordability of ride-hailing services may lead to overuse, reduced utilization of public transportation, and increased congestion and pollution.
- Rising demand for bike-sharing services may lead to overproduction of bicycles, inadequate maintenance, and disposal, and increased environmental impact due to production and disposal.

4.3.3.3 Environmental Externalities

The sharing economy may create new environmental externalities that need to be addressed. For instance, the introduction of shared mobility services, including ride-sourcing and e-scooters, has raised concerns about safety, noise pollution, and improper parking [23]. Addressing these externalities requires the development of appropriate policies and regulations to reduce possible negative impacts on the environment and the local community.

Here are examples of how the sharing economy contributes to increased environmental externalities:

- E-scooters and ride-hailing services raise safety concerns, including injuries, accidents, and potential for harassment, and require stricter regulations, infrastructure design, and rider education.
- E-scooters and shared mobility vehicles can cause noise pollution, improper parking, and impact local communities, necessitating stricter regulations, infrastructure improvements, and responsible usage practices.

4.3.3.4 Energy and Resource Intensity

The sharing economy is primarily reliant on ICT infrastructure, such as servers, mobile devices, and data centres, each of which comes with its own set of energy and resource requirements. As stated in [15], the energy consumption associated with digital platforms and ICT infrastructure should be considered when assessing the overall environmental impact of the sharing economy. The energy and resource intensity of these technologies may contribute to carbon emissions and resource depletion, which may become a primary matter of concern.

Here are examples of energy and resource intensity:

- Shared mobility platforms consume significant energy, leading to increased demand for data storage and carbon emissions from electricity generation.
- ICT infrastructure development and operation depletes resources, creates electronic waste disposal challenges, and negatively impacts the environment.

While the sharing economy has brought positive changes to the transportation sector, it also presents above-mentioned negative impacts. There are many other negative impacts that the sharing economy may have. One significant concern is the disruptive nature of sharing economy platforms, which can undermine traditional public transportation systems, resulting in a decline in ridership and potentially compromising investments in sustainable mass transit infrastructure. Additionally, this disruption can offset the emission reductions achieved through improved occupancy rates.

4.3.4 Conclusion

The sharing economy facilitates resource optimization by encouraging the efficient use of existing assets, resulting in reduced car travel, promoting sustainability in tourism practices, and driving behavioural changes towards more eco-friendly transportation options. If has the potential for developing a positive environmental impact in the transportation sector. However, it is essential to address the adverse environmental impacts of rebound effects, excessive resource use, environmental externalities, and high energy as well as resource intensity.

To ensure that the sharing economy has a net positive impact, it is critical to establish proper legislation, policies, and sustainable practices. By doing so, we can maximize the desired positive environmental outcomes while effectively mitigating the potential negative consequences associated with the sharing economy in the transportation sector. Setting limitations on rebound effects, adopting effective resource management approaches, internalizing environmental costs through price mechanisms, and encouraging energy-efficient technology and practices are examples of such initiatives. Through a comprehensive approach, we can harness the full potential of the sharing economy while protecting the environment.

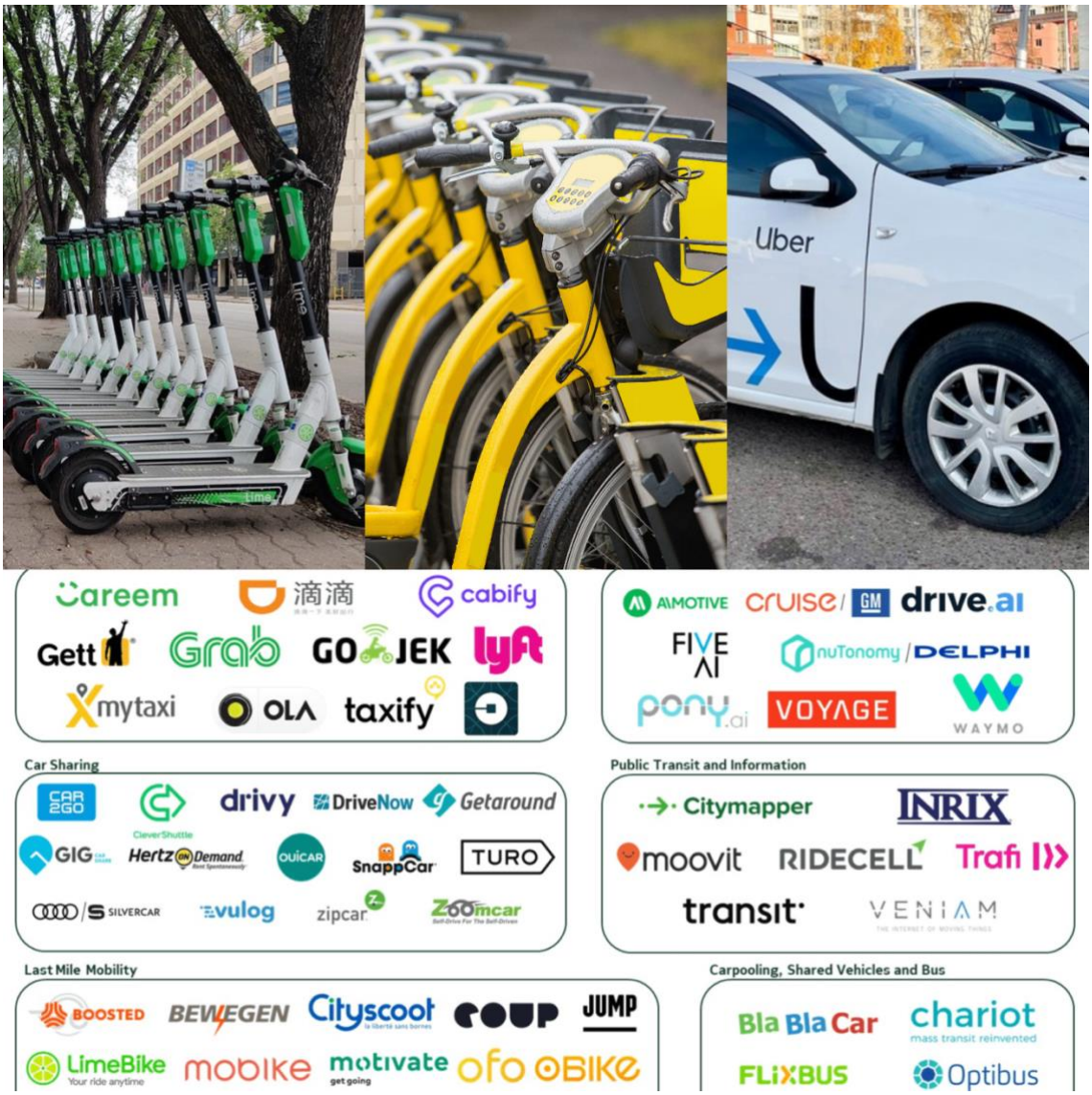

Figure 10: Transportation and Mobility Sharing Platforms (Source: Online)

4.4 Sharing Economy in the Food-Delivery Sector

In this chapter, I conducted a comprehensive analysis of eight research articles focusing on the sharing economy in food-delivery platforms. The primary goal was to analyze the most recent articles available. Significantly, all eight articles were specifically published between 2019 and 2023. This analysis intended to study both positive and negative environmental implications of sharing economy platforms operating in the food-delivery sector.

Figure 11: Food-delivery Platforms (Source: Adobe Stock, Online)

4.4.1 Introduction

The sharing economy in food-delivery platforms have transformed the way people access and consume food. Users may easily find a large choice of restaurants and have their selected meals delivered directly to their homes using these digital services. While the convenience and accessibility provided by these platforms are significant, it is necessary to properly analyze the impact on the environment they involve.

The aim of this chapter is to investigate the environmental impacts associated with food-delivery platforms, and thoroughly analyze both the positive and negative aspects. To accomplish this, an in-depth review of many studies and sources will be conducted, which will generate significant insights in the process. This chapter analyzes the current research to give a comprehensive understanding of the environmental impacts of food-delivery platforms, provide insight into their deeper effects on sustainability and resource usage.

As the popularity and accessibility of these platforms grow, it becomes increasingly important to analyze their environmental impact holistically. Policymakers, businesses, and consumers may make educated decisions and establish strategies to reduce any bad impacts while maximizing the potential advantages of these creative platforms by acquiring a greater knowledge of the positive and negative impacts they produce.

4.4.2 Positive Environmental Impacts

Food-delivery platforms have introduced several positive environmental impacts that contribute to sustainability and resource conservation. This section of this chapter focuses on finding the most significant positive impact of the food-delivery platforms in our ecology.

4.4.2.1 Reduction in Personal Vehicle Use

One of the primary benefits associated with food-delivery platforms is the possible reduction in the utilization of personal vehicles. By utilizing a centralized delivery system, these platforms optimize routes and consolidate orders, which minimizes the number of individual vehicles on the road. This reduction in private vehicle journeys has the potential to reduce carbon emissions and traffic congestion [26].

Here are examples of reduction in personal vehicle Use:

- Food delivery platforms reduce traffic congestion and improve air quality by optimizing delivery routes, encouraging public transportation, and promoting sustainable transportation options for delivery personnel.
- Food delivery platforms minimize grocery shopping trips and associated vehicle usage by replacing in-store shopping with on-demand delivery, consolidating grocery orders, and encouraging planned grocery shopping.

4.4.2.2 Efficient Delivery Logistics

Advanced logistics algorithms are used by food-delivery services to optimize the delivery process. To optimize delivery routes, these algorithms consider parameters such as distance, traffic conditions, and order volume. These systems lower fuel usage and the total environmental impact associated with food-delivery by optimizing delivery efficiency [27]. Moreover, an optimized delivery system shows the customer expected delivery time that helps customers make informed choices depending on the traffic situation in busy times of the day that also have a significant influence on ecology.

Here are examples of how the sharing economy contributes to efficient delivery logistics:

- Food delivery platforms reduce fuel consumption and emissions by optimizing delivery routes, consolidating orders, and promoting sustainable delivery practices.
- Food delivery platforms enhance customer experience and reduce delivery delays by providing real-time tracking, accurate delivery estimates, and minimizing delivery delays.

4.4.2.3 Support for Local Businesses and Sustainable Practices

Food-delivery platforms often collaborate with local restaurants and food providers. This collaboration has the potential to increase support for environmentally beneficial practices such as the use of locally produced foods, organic produce, and eco-friendly packaging. Food-delivery platforms help to create sustainable food ecosystems by promoting sustainable alternatives and linking consumers with environmentally committed enterprises [29]. Moreover, during the Covid-19 pandemic, food-delivery platforms played a prime role in the food industry as well as the well-being of both parties that stop the virus from spreading to a large extent.

Here are some examples of how the sharing economy support for local businesses and sustainable practices:

- Food delivery platforms promote local businesses and sustainable practices by collaborating with local restaurants, encouraging sustainable practices, and promoting transparency and traceability.
- Food delivery platforms facilitated food accessibility and reduced food waste during COVID-19 by ensuring food accessibility, minimizing food waste, and supporting local economies and communities.

4.4.2.4 Waste Reduction through Resource Optimization

Waste reduction through resource optimization is a crucial aspect of sustainable practices in food industries. By efficiently managing resources, such as materials, energy, and time, organizations can minimize waste generation, promote circular economy principles, and contribute to a more environmentally responsible approach. Food-delivery platforms help restaurants optimize their resources by allowing them to arrange their operations more efficiently. By accurately estimating demand and

adjusting food preparation accordingly, these platforms help minimize food waste, which leads to a more sustainable food system [29].

Here are some examples of how the sharing economy enhance waste reduction through resource optimization:

- Food delivery platforms minimize food waste through demand forecasting, inventory management, and educating restaurants on waste reduction practices.
- Food delivery platforms promote reusable packaging and minimize single-use waste by encouraging the use of reusables, partnering with restaurants, and educating customers.

4.4.2.5 Increased Consumer Awareness and Education

Food-delivery platforms frequently include specific information regarding partner restaurants' environmental initiatives, such as sustainable sourcing techniques or packaging materials. This enhanced transparency promotes customer awareness and educates customers about environmentally friendly options. As consumers make more informed decisions, they can actively support environmentally responsible businesses, thereby driving positive change in the food industry [29]. As a result, when restaurants notice that customers are making sustainable choices, they are also encouraged to expand their environment-friendly operations which is a great initiative to the sustainable future.

Here are some examples of how the sharing economy may increase consumer awareness and education:

- Food delivery platforms promote transparency and educate consumers about sustainable practices by highlighting restaurants' initiatives, providing clear labels, and educating consumers about the environmental impact of food choices.
- Food delivery platforms encourage customer support for sustainable businesses and drive positive change by rewarding customers for choosing sustainable options, featuring success stories and impact reports, and partnering with organizations to promote sustainable food practices.

Moreover, numerous studies conducted during this research have provided substantial evidence that food-delivery platforms offer a multitude of positive benefits in addition to those already mentioned. These studies have consistently highlighted the advantages and merits associated with using food-delivery platforms, further reinforcing their positive impact on various aspects. For instance, if someone is ill can order food or groceries to their home, or some delivery company allows customers to order necessary medicine with the proper collaboration with the necessary authorities, it makes people's life easier. It creates extra income opportunities too that makes people's life better.

4.4.3 Negative Environmental Impacts

While food-delivery platforms offer numerous advantages, they also pose certain environmental challenges that need to be addressed. This chapter explores and addresses the primary negative environmental impact highlighted in the selected studies.

4.4.3.1 Packaging Waste

One of the primary concerns associated with food-delivery platforms is the excessive packaging waste generated. To ensure food safety, prevent spillage during transit, and to keep the warmth of the food orders often come packaged in disposable containers, plastic utensils, and single-use packaging materials. The accumulation of this packaging waste contributes to landfill waste and raises questions about the overall sustainability of the delivery process [28]. The packaging is often not biodegradable, and even if it is paper packaging, either heavy paper or multiple paper bags are used to ensure the safety of the food during transportation.

Here are some examples of how the sharing economy contributes to increasing packaging waste:

- Food delivery platforms generate excessive non-biodegradable packaging waste, contributing to landfill waste, limited biodegradability, and inadequate recycling infrastructure.
- Food delivery platforms impact marine ecosystems and food chains through microplastic pollution, entanglement, and ecosystem disruption.

4.4.3.2 Increased Energy Consumption

The operational model of food-delivery platforms relies on extensive logistics and delivery networks. To ensure timely deliveries, multiple delivery drivers may be required to travel long distances. Additionally, the cars used for delivery work often leave the engine on for the entire duration to save time. Even if they are turned off frequently, each ignition causes extra fuel consumption. All of these factors are associated with increased energy consumption, especially when drivers use conventional fuel vehicles, leading to higher carbon emissions and environmental impact [31].

Here are some examples of how the sharing economy contributes to increasing energy consumption:

- Food delivery platforms consume excessive fuel and emit carbon emissions due to high mileage, idling time, and reliance on conventional fuel vehicles.
- Food delivery platforms negatively impact the environment through resource consumption for vehicle maintenance, waste generation from vehicle disposal, and a lack of sustainable delivery vehicle alternatives.

4.4.3.3 Traffic Congestion

While food-delivery platforms aim to optimize delivery routes, the surge in demand can still result in increased traffic congestion, especially during peak hours. The presence of numerous delivery vehicles on the road can contribute to traffic jams and emissions. It is crucial for these platforms to adopt measures that mitigate congestion and prioritize sustainable transportation options, such as electric vehicles or bicycles [31]. However, electric vehicles will still contribute to traffic congestion, and they are extremely expensive. Bicycles, however, are a good alternative, but they cannot travel long distances and cannot be operated in wintertime.

Here are some examples of how the sharing economy contributes to increasing traffic congestion:

- Food delivery platforms exacerbate traffic congestion during peak hours due to increased delivery vehicles, inefficient routes, and traffic patterns.

- Food delivery platforms face limitations in adopting sustainable transportation options due to cost, infrastructure, and operational constraints.

4.4.3.4 Dependency on Disposable Utensils

Many consumers prefer food-delivery because it is more convenient, and they frequently use disposable utensils. This reliance on single-use plastics and other disposable materials adds to the overall waste generated by the food-delivery industry. Some restaurants use wooden cutleries; those are environmentally friendly but still single use and responsible for cutting down trees. Encouraging customers to choose reusable or compostable utensils can help reduce the environmental impact [30].

Here are some examples of how the sharing economy contributes to increasing dependency on disposable utensils:

- Food delivery platforms generate excessive disposable utensil waste due to high consumption, limited reusable options, and landfill disposal.
- Wooden cutlery alternatives pose sustainability challenges due to environmental impact, limited biodegradability, and improper disposal.

4.4.3.5 Potential for Food Waste

While food-delivery platforms can help reduce food waste through better resource optimization, there is also a risk of increased food waste due to over-ordering or incorrect delivery. Sometimes customers do not understand the size of the portion they are ordering, so they may be inclined to order more food than they need, which leads to food waste if leftovers are not consumed. Additionally, mistakes in delivery can result in food being discarded, further contributing to food waste [30]. Moreover, food-delivery platform apps are overwhelmed with different food choices, which can lead to customers ordering food that they may not like the taste of resulting wastage of food.

Here are some examples of how the sharing economy contributes to food waste:

- Food delivery platforms can increase food waste due to over-ordering, delivery errors, and inadequate customer education.

- Food delivery platforms can contribute to food waste due to impulse ordering, unfamiliar cuisine, and a lack of customer feedback mechanisms.

While food-delivery platforms provide convenience, they also present above-mentioned negative impacts. These platforms may also have many other impacts. For instance, due to the rush of making money, accidents may occur that could affect the driver, other road users, traffic situation as well as the environment.

4.4.4 Conclusion:

Food-delivery platforms have transformed the way we enjoy food by offering incredible convenience and accessibility. These platforms provide a number of environmental benefits, such as reduced personal car usage, improved logistics, and support for sustainable behaviours. However, it is important to acknowledge and address the challenges they pose, such as packaging waste, increased energy consumption, and traffic congestion.

Figure 12: Food-delivery Service Platforms (Source: Online)

To reduce these damaging ecological effects, food-delivery platforms must prioritize and execute sustainable practices. This can be accomplished through the adoption of eco-friendly packaging materials, promoting the use of reusable utensils, optimizing logistics to minimize emissions, and supporting local businesses that prioritize sustainability in their operations. Food-delivery platforms may continue to grow as environmentally responsible and sustainable solutions for food consumption by proactively addressing these concerns, guaranteeing a greener future for the business.

4.5 Sharing Economy in Other Sectors

In recent years, the sharing economy has experienced significant growth and has extended its reach far beyond its initial focus on accommodation, transportation sharing, and food delivery services. This expanding trend has led to the incorporation of various industries and sectors into the sharing economy model which is continuously growing. Expected developments indicate a forthcoming increase in the adoption of sharing economy models among various new service sectors.

4.5.1 Introduction

Traditionally, the sharing economy emerged as a response to underutilized resources and the desire for more sustainable and efficient use of goods and services. It started with platforms like Airbnb, Uber, Foodora, and DoorDash, which allowed individuals to share their homes, provide transportation, or offer their skills and services to others on demand. These platforms disrupted traditional industries and introduced new ways of accessing and utilizing resources.

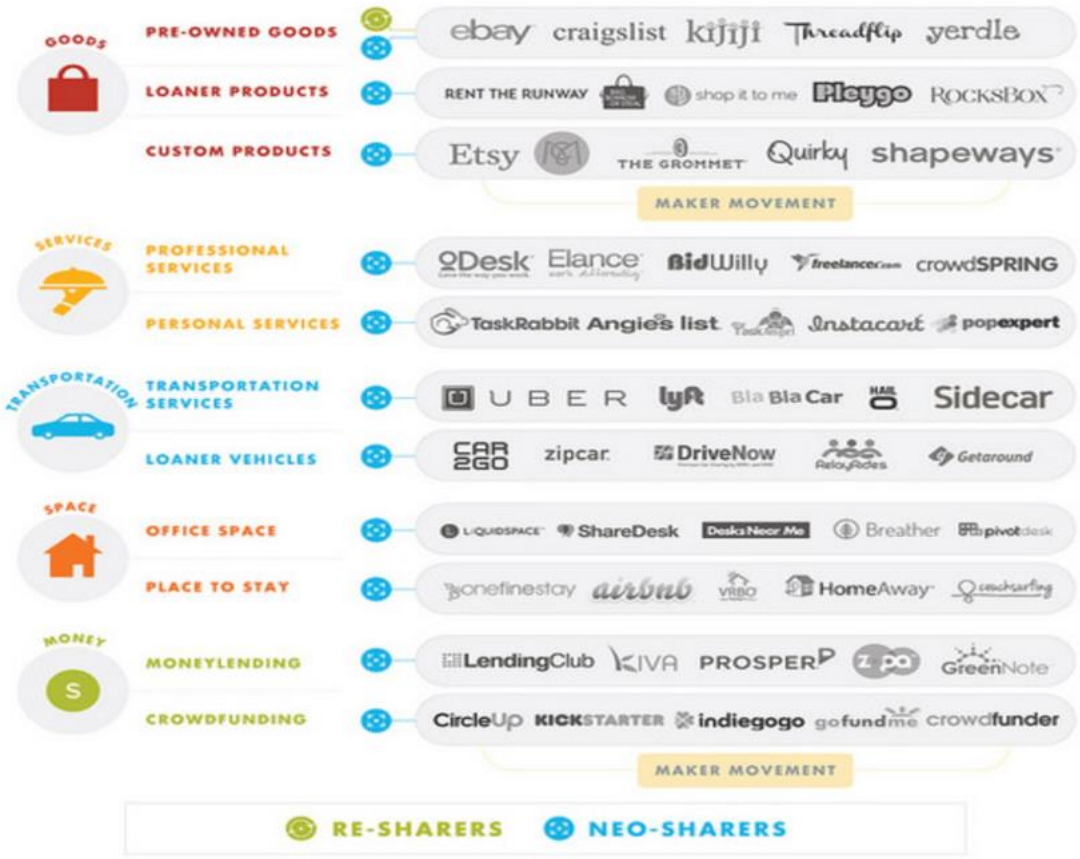

Figure 13: Different Sharing Economy Platforms (Source: Slide Share, Online)

However, as the sharing economy concept gained popularity and consumers got familiar with the concept of peer-to-peer transactions, the variety of sectors participating in sharing grew significantly. The sharing economy has commenced exerting its influence across numerous sectors, thereby manifesting a notable impact. Subsequently, a few noteworthy sectors impacted by this trend are hereby outlined.

4.5.2 Workspace Sharing

Workspace sharing refers to the practice of collaborating and utilizing a shared physical or virtual space where individuals or organizations can work together, exchange knowledge, and foster innovation. It involves the sharing of resources, such as physical workstations, digital platforms, to facilitate collaboration, communication, and productivity among multiple users, companies or teams. The concept of workspace sharing is particularly significant for small or medium

enterprises (SMEs) and freelancers who can benefit from networking and knowledge sharing with other organizations to enhance their capabilities and competitive advantage [35]. Workland serves as a prime example of a workspace-sharing company operating in the Baltic region. It offers shared physical workspaces in various locations, including Helsinki, Tallinn, Riga, Vilnius, and Kaunas [56].

Shared workspaces can take various forms, including co-working spaces, collaborative research centers, meeting rooms, virtual workspaces, and digital platforms that enable remote collaboration. These spaces provide opportunities for individuals or organizations to interact, share ideas, and leverage each other's expertise and resources. It effectively generates substantial revenue for the service providers while concurrently enabling significant cost savings for the customers. Switchboard, SpatialChat, and Teamflow are some examples of virtual workspace-sharing platforms.

4.5.3 Storage Sharing

Storage sharing is the practice of sharing storage resources, either physical or virtual, among multiple users or entities to maximize storage capacity utilization and meet diverse storage requirements.

- **Physical storage sharing:** Physical storage sharing refers to the practice of sharing physical storage units or spaces among individuals or businesses to optimize the utilization of storage resources. It involves the sharing of existing storage infrastructure, such as storage units, warehouses, or facilities, allowing multiple users to make use of available storage capacity.

  One example of physical storage sharing is Neighbor.com, an online platform that connects individuals who have extra storage space with those in need of storage. Users can list their available storage units or spaces, and others can rent them for short-term or long-term storage needs.

- **Virtual storage sharing:** Virtual storage sharing is the process of pooling and sharing storage resources in a virtualized environment, enabling multiple users or organizations to utilize shared storage capacity and resources. [37]

  Virtual storage sharing is commonly implemented through technologies such as software-defined storage (SDS) and cloud storage services. In SDS,

storage resources from multiple physical devices are aggregated and presented as a single virtual storage pool, which can be dynamically allocated and shared among users or applications. Cloud storage services, such as Dropbox, Google Drive, or Microsoft OneDrive, provide virtual storage sharing capabilities, allowing users to store and share files remotely through a shared storage infrastructure.

4.5.4 Goods Sharing

The concept of goods sharing aligns with the principles of the sharing economy, which seeks to maximize the use of resources and minimize waste by encouraging the exchange and sharing of goods and services [38][39]. By participating in these platforms, individuals can give a new life to their unwanted items, benefiting both the environment and the community.

Goods sharing platforms like Freecycle, Bunz, Olio, Facebook Marketplace, and Nextdoor play a crucial role in facilitating the sharing of goods and items among community members. These platforms allow people to give away or lend items they no longer need, promoting sustainability, reducing waste, and fostering a sense of community. The rise of goods sharing platforms has gained significant attention due to its positive impact on reducing waste, saving money, and fostering community engagement.

4.5.5 Skill-sharing and Tutoring

Skill-sharing and tutoring platforms are great examples of sharing economy. These are online platforms that facilitate the exchange of knowledge, skills, and expertise between individuals who want to learn and those who want to teach. These platforms provide a space for learners to connect with instructors, access educational resources, and acquire new skills or deepen their existing knowledge in various subjects.

Skill-sharing and tutoring platforms like Skillshare, Udemy, and Wyzant have revolutionized online learning by providing opportunities for individuals to share their expertise and teach others through online courses, as well as connecting tutors with students seeking academic assistance.

4.5.6 Task outsourcing

Task outsourcing refers to the practice of delegating tasks and projects to external freelancers or service providers through online platforms like Fiverr and Upwork. These platforms act as intermediaries, connecting businesses and individuals with a wide range of freelancers who offer various services such as graphic design, writing, programming, and more.

These platforms typically offer a range of features and functionalities to streamline the outsourcing process. They may include tools for task posting, bidding, and negotiation, as well as communication and collaboration tools for efficient project management. Payment systems are often integrated into the platforms, allowing clients to securely pay for the completed work and freelancers or service providers to receive their compensation.

These above-mentioned examples illustrate the diverse range of industries and services that have adopted sharing economy platforms, promoting resource utilization, collaboration, and efficiency in different sectors of the economy. Overall, sharing economy platforms have revolutionized numerous industries, fostering resource utilization, collaboration, and efficiency. They have provided new avenues for economic participation, increased consumer choice, and contributed to a more sustainable and interconnected economy.

4.5.7 The Common Environmental Impact of Sharing Economy

Numerous sharing economy platforms currently exist, encompassing a wide range of domains. While these platforms contribute positively to ecological matters, they also generate negative impacts. The most widely recognized sharing economy platforms include accommodation, transportation, and food-delivery services. Extensive research has been conducted on the environmental consequences of these prominent platforms. Nevertheless, there is a limited body of literature addressing the environmental impact of other domains within the sharing economy, such as those outlined in "chapter 3.5".

While conducting a comprehensive analysis of the existing literature, it became evident that all these platforms exhibit shared positive and negative effects on the environment. To avoid redundancy, this chapter presents an extensive analysis of

the environmental impacts associated with the above-mentioned domains, encompassing both their positive and negative aspects.

4.5.7.1 Positive Environmental Impacts

Each domain within the sharing economy presents distinct positive impacts, which may not exclusively associate to the environment. These positive impacts can be related to factors such as quality, finance, accessibility, or domain-specific attributes. However, all these platforms share common environmental impacts. The following are the most common positive environmental impacts observed across these platforms.

- **Resource Efficiency:** Sharing economy platforms promote the efficient use of resources by facilitating the sharing and utilization of underutilized assets, reducing the need for production and consumption of new goods [15]. This leads to a reduction in overall resource consumption and helps in conserving natural resources.
- **Waste Reduction:** By enabling the sharing and reuse of goods, sharing economy platforms contribute to waste reduction. They help minimize the disposal of unused or unwanted items, thereby reducing the amount of waste generated [45].
- **Lower Carbon Footprint:** Sharing economy platforms can contribute to reducing carbon emissions. When individuals share rides or accommodations, it reduces the number of vehicles on the road and overall energy consumption, leading to a decrease in greenhouse gas emissions [46].
- **Sustainable Consumption:** The sharing economy promotes access-based consumption rather than ownership-based consumption. This shift from owning to sharing reduces the demand for new products and encourages a more sustainable and circular economy model [47].
- **Community Building:** Sharing economy platforms often foster a sense of community by connecting individuals who share resources. This can lead to increased social interactions, trust-building, and cooperative behavior within communities, promoting a more sustainable and resilient society [48].

These are most common positive environmental impacts associated with less studied sharing economy platforms. Further research and studies will explore the broader implications and potential benefits of the sharing economy in creating a more sustainable world.

4.5.7.2 Negative Environmental Impacts

With the positive impact associated with each domain within the sharing economy it brings some negative impacts too, which may not exclusively associate to the environment. These negative impacts can be related to factors such as service quality, safety, privacy, or domain-specific attributes. However, all these platforms share some common environmental impacts. The following are the most common negative environmental impacts observed across these platforms.

- **Increased resource consumption:** Sharing economy platforms can contribute to increased overall resource consumption, as they may encourage more frequent and convenient access to goods and services, leading to higher levels of production and consumption [45].
- **Greenhouse gas emissions:** The transportation involved in sharing economy activities, such as ridesharing and delivery services, can result in increased greenhouse gas emissions. The use of personal vehicles for ride-hailing services, for example, may contribute to additional traffic congestion and emissions [15].
- **Waste generation:** Sharing economy platforms can lead to an increase in waste generation, particularly in cases where shared resources are not properly maintained or when excessive packaging is used for deliveries [45].
- **Energy consumption:** The use of sharing economy platforms can result in increased energy consumption, particularly in cases where shared resources require additional energy for maintenance, charging, or operation [49].
- **Displacement of sustainable alternatives:** Sharing economy platforms may displace more sustainable alternatives. For example, the rise of short-term accommodation rentals through platforms like Airbnb and workspace sharing has been associated with reduced long-term rental availability and

increased housing prices in certain areas, potentially leading to urban sprawl and increased energy consumption [48].

- **E-waste generation:** The use of sharing economy platforms for the rental or sharing of electronic devices can contribute to an increase in electronic waste when these devices reach the end of their lifecycle or require frequent upgrades [45].

It is important to put efforts to mitigate the negative impacts and promote sustainable practices within sharing economy platforms are crucial for maximizing their positive environmental outcomes.

4.5.8 Conclusion

It is important to note that while these negative environmental impacts exist, sharing economy platforms also have the potential to promote sustainability and reduce environmental burdens through improved resource utilization and reduced overall consumption. To promote sustainable practices in the sharing economy, policymakers need to establish evidence-based regulations. Businesses and service providers should be knowledgeable about the potential environmental impacts and advantages associated with the sharing economy, developing strategies to mitigate negative effects and capitalize on positive ones. Additionally, consumers should be informed about the environmental consequences of their sharing economy engagements and make informed choices to minimize their negative environmental impacts.

5 SOCIAL AND ECONOMIC IMPACT OF SHARING ECONOMY

In examining the connection between the sharing economy and sustainability, there's a consistent inquiry into how social, economic, and environmental aspects are influenced by this business model concerning sustainability. While this thesis primarily addresses the environmental impact of the sharing economy, the social and economic aspects are indirectly implicated in the research due to their role in shaping environmental impacts. Hence, it's important to briefly discuss the social and economic impact of the sharing economy within this thesis.

The appearance of the sharing economy has had profound social and economic impacts on various levels of society. Socially, it has fostered a sense of community and trust among individuals by enabling peer-to-peer interactions. People can now share assets, services, and skills, which not only promotes sustainability but also enhances social connections and relationships. However, it has also raised concerns about labor rights and job security, as gig workers often lack traditional employment benefits and face uncertain income streams.

On the economic front, the sharing economy has disrupted traditional business models and industries. It has created new marketplaces and opportunities for both consumers and entrepreneurs, often resulting in cost savings and increased efficiency. However, it has also challenged existing regulatory frameworks, leading to debates about how to balance innovation with the need for consumer protection and fair competition. Overall, the sharing economy has brought about a shift in societal behaviors and economic structures, requiring thoughtful consideration of its long-term implications and appropriate regulatory measures to ensure a fair and inclusive future.

In this chapter, I will provide a concise exploration of both the positive and negative social and economic impacts stemming from the sharing economy.

5.1 Social Impact of Sharing Economy

The sharing economy has a mixed social impact. It has the potential to empower individuals and build community, but it can also lead to job insecurity and exploitation. It is important to be aware of both the positive and negative impacts of the sharing economy to make informed decisions about how to use it. It has altered consumer behavior by prioritizing access over ownership. People are becoming more accustomed to renting or sharing goods and services rather than purchasing them outright, reflecting a shift in societal values towards experiences and access rather than material possession. In sum, the sharing economy has redefined social interactions, economic participation, and environmental consciousness in contemporary society.

5.1.1 Positive social impacts

The sharing economy has positively impacted communities by fostering a sense of trust and cooperation among individuals who engage in peer-to-peer exchanges. It has also promoted inclusivity by creating economic opportunities for a broader range of participants, enabling them to leverage their assets and skills for mutual benefit. The following are few of the most common positive social impacts associated with sharing economy.

5.1.1.1 Community Building

The sharing economy is changing the way we work and shop by connecting people with each other through online platforms and networks. This is bringing communities closer together and creating new opportunities for social interaction and collaboration [68]. For example, Airbnb hosts and guests often form close relationships, and Uber drivers and passengers may have meaningful conversations during their rides. Sharing economy platforms can also facilitate offline community events, such as meetups for Airbnb hosts or coworking spaces for freelancers.

The sharing economy is also changing the way we think about ownership. In the traditional economy, ownership is seen as something that is exclusive and individual. However, the sharing economy is promoting a more collaborative and inclusive approach to ownership. For example, people who use Airbnb are sharing

their homes with others, and people who use Uber are sharing their cars. This is leading to a more efficient and sustainable use of resources.

Overall, the sharing economy is bringing communities closer together and creating new opportunities for social interaction and collaboration. It is also promoting a more collaborative and inclusive approach to ownership.

Here is an example of how the sharing economy can bring communities closer together:

- A group of Airbnb hosts in a small town decide to start a monthly meetup for hosts and guests. This gives hosts and guests a chance to get to know each other and to share their experiences. The meetups also help to promote the town as a tourist destination.

Overall, the sharing economy has the potential to make our communities more connected and vibrant. It can also help to create a more sustainable and equitable society.

5.1.1.2 Increase social cohesion

Sharing economy platforms provide opportunities for people to interact and collaborate with strangers in ways that were not possible before. For example, Couchsurfing allows travelers to connect with locals who are willing to offer them a place to stay for free [65]. This can lead to meaningful social interactions and the building of trust between strangers.

There are several factors that contribute to the trust-building process on sharing economy platforms. First, many platforms require users to create profiles and provide references. This helps users to learn more about each other before interacting. Second, platforms often have rating and review systems, which allow users to share feedback about their experiences with other users. This helps to build trust and accountability among users.

Couchsurfing is a good example of a sharing economy platform that facilitates social interaction and trust-building between strangers. Couchsurfers are often motivated by a desire to connect with people from different cultures and backgrounds. They also tend to be generous and hospitable. As a result, Couchsurfing has a strong reputation for being a safe and welcoming community.

Here are some specific examples of how Couchsurfing can facilitate social interaction and build trust between strangers:

- Couchsurfers often host and stay with each other in their homes. This provides an opportunity for them to get to know each other on a deeper level.
- Couchsurfers often organize and participate in offline events, such as meetups and potlucks. This gives them a chance to socialize and connect with other members of the community in person.
- Couchsurfers often leave feedback and reviews for each other on the Couchsurfing platform. This helps to build trust and accountability among users.

Overall, sharing economy platforms like Couchsurfing can play an important role in facilitating social interaction and building trust between strangers. They can help to create a more connected and inclusive world.

5.1.1.3 Support for local economies

Sharing economy platforms can support local businesses and communities by providing a platform for local businesses to reach a wider audience and by connecting people with local service providers [65]. For example, Etsy allows artisans to sell their products directly to consumers all over the world. This can help artisans to grow their businesses and support their communities. Similarly, TaskRabbit connects people with local handymen and other skilled service providers. This can help people to find reliable and affordable services, and it can also help local service providers to find new customers.

In addition to providing economic benefits, sharing economy platforms can also help to build community. When people use these platforms to support local businesses and service providers, they are helping to create a more vibrant and sustainable local economy.

Here are some specific examples of how sharing economy platforms can help to support local businesses and communities:

- Etsy helps artisans to reach a global audience for their products. This can help to boost the local economy and create jobs.

- TaskRabbit connects people with local handymen and other skilled service providers. This can help people to find reliable and affordable services, and it can also help local service providers to find new customers.
- Airbnb hosts often get to know their guests and help them to explore the local area. This can help to promote tourism and support local businesses.
- Ride-sharing drivers often have conversations with their passengers about the local community. This can help to build social ties and a sense of community.

Overall, sharing economy platforms can play an important role in supporting local businesses and communities. They can help to create a more vibrant and sustainable local economy, and they can also help to build social ties and a sense of community.

5.1.1.4 Increased transparency and accountability

Sharing economy platforms increased transparency and accountability; it relies on trust and safety to function. Rating systems and feedback mechanisms help to build trust between participants and hold them accountable for their behavior. This can make the platforms safer and more enjoyable for everyone involved [65]. For example, Airbnb hosts and guests are required to rate and review each other after each stay. This helps to build trust between hosts and guests, as they can learn about each other's experiences and reputations. Uber drivers and passengers are also required to rate and review each other. This helps to ensure that drivers are providing good service and that passengers are behaving respectfully.

Rating systems and feedback mechanisms can also help to deter bad behavior. For example, if an Airbnb host receives consistently negative reviews, they may be removed from the platform. Similarly, if an Uber driver receives consistently low ratings, they may be banned from the platform.

Here is an example of how rating systems and feedback mechanisms can work in practice:

- A traveler books an Airbnb in a new city. They read the reviews of the host and see that they have consistently positive reviews. This gives the traveler

confidence that the host is reliable, and that the Airbnb is a good place to stay.

- After the stay, the traveler leaves a positive review for the host. This helps to build trust between the host and other travelers. It also helps the host to maintain their good reputation on the platform.
- If the traveler had had a bad experience, they could have left a negative review for the host. This would have warned other travelers about the host and helped to hold the host accountable for their behavior.

Overall, rating systems and feedback mechanisms play an important role in promoting trust and safety on sharing economy platforms. They help to hold participants accountable for their behavior and create a more positive experience for everyone involved.

5.1.1.5 Flexibility and Independence

The sharing economy is enabling more and more people to start their own businesses using their personal assets. This is creating new opportunities for flexibility, independence, and ownership [68]. For example, people are renting out their spare rooms on Airbnb, driving for Uber or Lyft, and providing other services through platforms like TaskRabbit. This allows them to work on their own terms and to be their own boss. It also allows them to earn money from their personal assets, which would otherwise be sitting idle.

The sharing economy is also making it easier for people to start businesses with low overhead costs. This is because people can use their personal assets, such as their cars and homes, to provide services. This can make it easier for people to get started in business, even if they don't have a lot of money to invest.

The shift to using personal assets as the basis for businesses is also having a social impact. It is leading to a more decentralized economy, where people are more independent and less reliant on large corporations. It is also creating a more collaborative economy, where people are sharing their assets and resources with each other.

Here are some specific examples of how people are using their personal assets to start businesses in the sharing economy:

- Airbnb hosts rent out their spare rooms to travelers from all over the world.
- Uber and Lyft drivers provide transportation services using their own cars.
- TaskRabbit providers offer a wide range of services, such as handyman work, cleaning, and errands.
- Etsy sellers sell their handmade products directly to consumers.
- DogVacay sitters provide pet care services in their own homes.

These are just a few examples of the many ways that people are using their personal assets to start businesses in the sharing economy. The sharing economy is creating new opportunities for people to be their own boss, to work on their own terms, and to earn money from their personal assets. This is having a positive impact on the social context, leading to a more decentralized and collaborative economy.

5.1.2 Negative social impacts

The sharing economy has raised concerns about labor rights, as some platform workers may lack traditional job benefits and job security. Additionally, it can potentially contribute to the displacement of traditional industries and businesses, affecting their stability and workforce. All these has negative social impact.

5.1.2.1 Discrimination

Discrimination is a serious social problem, and the sharing economy is no exception. Sharing economy platforms have been accused of facilitating discrimination against certain groups of people, such as minorities and women [65]. This can happen in several ways. For example, Airbnb hosts may refuse to rent to guests of certain races or religions. Uber drivers may cancel rides on passengers who they perceive to be from certain groups. And TaskRabbit providers may refuse to provide services to clients who they perceive to be from certain groups.

Discrimination on sharing economy platforms can have several negative consequences. It can make it difficult for people from marginalized groups to access the goods and services that they need. It can also make people from marginalized groups feel unsafe and unwelcome.

Sharing economy platforms have a responsibility to address the issue of discrimination. They can do this by implementing policies and procedures that prohibit discrimination. They can also educate their users about the importance of inclusion and non-discrimination.

Here are some specific examples of how sharing economy platforms can address the issue of discrimination:

- Airbnb can implement a policy that prohibits hosts from discriminating against guests based on race, religion, or other protected characteristics. Airbnb can also educate hosts about the importance of inclusion and non-discrimination.
- Uber can implement a policy that prohibits drivers from canceling rides on passengers because of their perceived race, religion, or other protected characteristics. Uber can also educate drivers about the importance of inclusion and non-discrimination.
- TaskRabbit can implement a policy that prohibits providers from refusing to provide services to clients because of their perceived race, religion, or other protected characteristics. TaskRabbit can also educate providers about the importance of inclusion and non-discrimination.

It is important to note that the sharing economy is still a relatively new phenomenon. As a result, there is still much that we need to learn about how to address the issue of discrimination on sharing economy platforms. However, by taking steps to address the issue of discrimination, sharing economy platforms can help to create a more inclusive and equitable society.

5.1.2.2 Decreased Social Security

Social security benefits are important for providing financial security and well-being to workers. However, workers in the sharing economy often lack access to these benefits [66]. This is because many workers in the sharing economy are classified as independent contractors rather than employees. Independent contractors are not typically eligible for social security benefits.

The lack of social security benefits can have several negative consequences for workers in the sharing economy. For example, workers in the sharing economy may

be more likely to experience financial hardship if they become sick or injured. They may also be less likely to be able to save for retirement.

There are several reasons why workers in the sharing economy are often classified as independent contractors. One reason is that it can be difficult for companies to classify workers as employees in the sharing economy. This is because workers in the sharing economy often have a lot of flexibility in how and when they work. Another reason is that companies may want to avoid the costs associated with employing workers, such as paying payroll taxes and providing health insurance benefits.

There are several things that can be done to address the issue of lack of social security benefits for workers in the sharing economy. One option is to change the law so that independent contractors are eligible for social security benefits. Another option is to create new social security programs that are specifically designed for workers in the sharing economy.

Here are some specific examples of how the lack of social security benefits can impact workers in the sharing economy:

- An Uber driver who becomes sick or injured may have difficulty paying their medical bills if they do not have health insurance.
- An Airbnb host who retires may have difficulty making ends meet if they do not have a retirement plan.
- A TaskRabbit provider who becomes disabled may have difficulty supporting themselves if they do not have income protection insurance.

It is important to note that the sharing economy is still a relatively new phenomenon. As a result, there is still much that we need to learn about how to address the issue of lack of social security benefits for workers in the sharing economy. However, by taking steps to address the issue of lack of social security benefits, we can help to ensure that workers in the sharing economy have the same financial security and well-being as workers in traditional jobs.

5.1.2.3 Gig Economy Confusion

The sharing economy and the gig economy are two related concepts, but they are not the same thing. The sharing economy is about sharing idle assets, such as spare rooms, cars, and tools. The gig economy is about working on a temporary or freelance basis, often through online platforms [66].

The sharing economy is a subset of the gig economy. In other words, all sharing economy workers are also gig workers. However, not all gig workers are involved in the sharing economy. For example, a freelance writer who works through Upwork is a gig worker, but they are not involved in the sharing economy.

The sharing economy and the gig economy have several social implications. For example, they can lead to flexibility and independence for workers. However, they can also lead to job insecurity and a lack of benefits.

Here is a table that summarizes the key differences between the sharing economy and the gig economy:

Characteristic	Sharing economy	Gig economy
Definition	Sharing idle assets	Working on a temporary or freelance basis
Examples	Airbnb, Uber, TaskRabbit	Upwork, Fiverr, Freelancer.com
Social implications	Flexibility and independence for workers, but also job insecurity and a lack of benefits	Flexibility and independence for workers, but also job insecurity and a lack of benefits

Table 3: Differences between the sharing economy and the gig economy

It is important to note that the sharing economy and the gig economy are still relatively new phenomena. As a result, there is still much that we need to learn about their social implications. However, by understanding the key differences between the sharing economy and the gig economy, we can better understand their social implications and develop policies and programs to address the challenges and opportunities that they present.

5.1.2.4 Trust Issues

Trust is essential for the sharing economy to function. When people share their assets or services with others, they need to be able to trust that the other people will use their assets or services responsibly and honestly. However, trust can be difficult to establish when dealing with strangers [67].

There are several factors that can contribute to trust in the sharing economy. One factor is reputation. Sharing economy platforms often have rating and review systems that allow users to rate and review each other. This can help users to learn more about the trustworthiness of other users before interacting with them.

Another factor that can contribute to trust in the sharing economy is identity verification. Many sharing economy platforms require users to verify their identity before they can use the platform. This helps to ensure that users are who they say they are and that they are not using fake accounts.

Finally, the terms of service of sharing economy platforms can also play a role in building trust. For example, some sharing economy platforms have policies that protect users from fraud and other forms of abuse. This can help users to feel more confident when using the platform.

Despite the efforts of sharing economy platforms to build trust, there are still some risks associated with dealing with strangers. For example, users may encounter fraud, theft, or other forms of abuse. It is important for users to be aware of the risks and to take steps to protect themselves.

Here are some specific examples of how trust can be a concern in the sharing economy:

- An Airbnb host may be concerned about renting their home to strangers. They may worry that the guests will damage their property or steal their belongings.
- An Uber driver may be concerned about picking up strangers. They may worry that the passengers will be violent or that they will not be paid for the ride.

- A TaskRabbit provider may be concerned about providing services to strangers. They may worry that the clients will not be happy with their work or that they will not be paid for their services.

It is important to note that the sharing economy is still a relatively new phenomenon. As a result, there is still much that we need to learn about how to build trust in the sharing economy. However, by understanding the risks and taking steps to protect ourselves, we can help to make the sharing economy a safer and more enjoyable experience for everyone involved.

5.1.2.5 Empowerment Concerns

There are concerns about who really benefits from the sharing economy [67]. Some people argue that the sharing economy benefits large corporations more than it benefits individuals. For example, Airbnb and Uber have been criticized for taking a large cut of the revenue that is generated by their platforms. Additionally, some people argue that the sharing economy is contributing to the growth of the gig economy, which is characterized by low wages and job insecurity.

Others argue that the sharing economy benefits individuals more than it benefits corporations. For example, Airbnb hosts and Uber drivers can earn money from their idle assets and set their own hours. Additionally, the sharing economy can provide individuals with access to goods and services that they would not otherwise be able to afford.

It is important to note that there is no consensus on who really benefits from the sharing economy. The sharing economy is a complex phenomenon with both positive and negative implications. It is important to consider all the perspectives on the sharing economy when evaluating its impact.

Here are some specific examples of the different perspectives on who really benefits from the sharing economy:

- **Large corporations:** Some people argue that large corporations are the biggest beneficiaries of the sharing economy. They point to the fact that companies like Airbnb and Uber have become extremely profitable in a short period of time. They also argue that these companies can avoid paying taxes

and providing benefits to their workers because they classify their workers as independent contractors.

- **Individuals:** Other people argue that the sharing economy is benefiting individuals more than corporations. They point to the fact that individuals can earn money from their idle assets and set their own hours when they participate in the sharing economy. They also argue that the sharing economy can provide individuals with access to goods and services that they would not otherwise be able to afford.
- **Workers:** There is also concern about the impact of the sharing economy on workers. Some people argue that the sharing economy is leading to the growth of the gig economy, which is characterized by low wages and job insecurity. They also argue that workers in the sharing economy often lack access to social security benefits, such as health insurance and retirement plans.

Overall, the sharing economy is a complex phenomenon with both positive and negative implications. It is important to consider all the perspectives on the sharing economy when evaluating its impact.

5.1.3 Conclusion

In summary, the sharing economy is a complex phenomenon that has both positive and negative impacts on society. On the positive side, it has the potential to strengthen communities, promote social cohesion, boost local economies, enhance transparency and accountability, and offer individuals greater flexibility and independence in their work. It encourages trust and cooperation among people and encourages the efficient use of resources, challenging traditional notions of ownership.

However, there are significant challenges to contend with as well. Discrimination remains a concern on sharing economy platforms, potentially leading to the exclusion of certain groups and negative experiences for users. The absence of social security benefits for platform workers, often categorized as independent contractors, raises concerns about their financial security. The distinction between the sharing economy and the gig economy can be confusing, impacting job stability

and the welfare of workers. Trust issues, particularly when dealing with strangers, can pose risks to users of sharing economy platforms.

Furthermore, an ongoing debate surrounds whether the sharing economy primarily benefits large corporations or individual participants. Concerns persist regarding the growth of the gig economy and its consequences for low wages and job insecurity. As the sharing economy continues to evolve, it is imperative to strike a balance between leveraging its advantages and addressing its challenges to create a more equitable and inclusive society.

5.2 Economic Impact of Sharing Economy

The sharing economy has significantly impacted the economy by generating new economic opportunities and altering traditional business models. It has provided a platform for individuals to monetize underutilized assets, such as spare rooms or vehicles, contributing to income generation and economic growth [4]. By promoting efficient resource utilization and reducing waste, the sharing economy has the potential to lower overall consumption and lead to cost savings for both consumers and providers. Additionally, it has facilitated entrepreneurship and the growth of small and medium-sized enterprises by offering a platform for individuals to start their own sharing-based businesses [60]. However, challenges related to regulation, tax compliance, and fair compensation for workers remain crucial areas to address for the sustainable growth of the sharing economy.

5.2.1 Positive Economic Impacts

The sharing economy positively impacts the economy by unlocking new income streams for individuals and promoting economic growth through increased resource utilization. The following are few of the most common positive economic impacts associated with sharing economy platforms.

5.2.1.1 Increased Resource Utilization and Efficiency

The sharing economy is a business concept that encourages the effective use of underutilized resources while reducing waste [4]. Popular businesses such as Airbnb for accommodation sharing and car-sharing platforms like Uber, BlaBla Car

represent this approach. These platforms offer individuals the opportunity to generate income from their unused properties or vehicles. They essentially tap into resources that would otherwise be idle, allowing these assets to serve a function and minimizing total waste in our society. This effective distribution of underutilized resources not only helps individuals monetarily but also contributes to a more sustainable and ecologically sensitive attitude toward consuming.

Here are some specific examples of how the sharing economy is increasing resource utilization and efficiency:

- Ride-sharing platforms such as Uber and Lyft allow people to share rides, which reduces the number of cars on the road and makes more efficient use of existing vehicles.
- Home-sharing platforms such as Airbnb allow people to rent out their spare bedrooms or entire homes to travelers, which makes more efficient use of existing housing stock.
- Tool-sharing platforms such as Home Depot's Tool Rental Center allow people to rent tools and other equipment that they need for occasional projects, which reduces the need to buy new tools that may only be used once or twice.
- Food-sharing platforms such as Wolt and Foodora allow restaurants and cafes to sell surplus food at a discounted price to consumers, which reduces food waste.

The sharing economy is still a relatively new phenomenon, but it is growing rapidly and having a significant impact on the economy. As the sharing economy continues to grow, it is likely to have an even greater impact on resource utilization and efficiency.

5.2.1.2 Job Creation and Income Generation

The sharing economy has a significant impact on employment by creating new possibilities and providing individuals with additional sources of income [60]. This benefits not only personal finances but also general economic growth. Notable platforms such as Uber, Wolt, Foodora and TaskRabbit demonstrate this trend by providing flexible job options. They enable people to make money according to

their schedules and preferences. As a result, the sharing economy has emerged as a key engine of economic growth, enhancing the livelihoods of countless individuals while also stimulating economic activity.

The sharing economy is creating new jobs and opportunities for people to earn additional income in several ways. For example:

- **New platform jobs:** Sharing economy platforms, such as Uber, Airbnb, and TaskRabbit, create new jobs for people who work as drivers, hosts, and taskers. These jobs can be full-time or part-time, and they offer a flexible work schedule.
- **New self-employment opportunities:** The sharing economy also makes it easier for people to start their own businesses and become self-employed. For example, people can rent out their homes on Airbnb, drive for Uber, or offer their services on TaskRabbit.
- **New ways to supplement income:** The sharing economy also provides new ways for people to supplement their income from other jobs. For example, a person with a full-time job could rent out their spare bedroom on Airbnb or drive for Uber on the weekends.

Overall, the sharing economy is having a positive impact on employment and income generation. It is creating new jobs and opportunities, providing new ways for people to supplement their income, and helping to reduce income inequality.

5.2.1.3 Cost Savings for Consumers

The sharing economy gives customers access to cost-effective alternatives that are typically less expensive than traditional solutions [61]. Ride-sharing services such as Uber, Lyft and Grab, GoMore, for example, provide a cost-effective alternative to having a personal vehicle. This cost-effectiveness not only helps customers' wallets but also corresponds with the modern economy's larger trend of cost-conscious decision-making. As a result, the sharing economy provides customers with affordability and financial savings, making it an appealing alternative for many.

The sharing economy offers consumers several ways to save money on goods and services. For example:

- **Lower prices:** Sharing economy platforms often offer goods and services at a lower price than traditional businesses. This is because sharing economy businesses have lower overhead costs, such as inventory and real estate costs.
- **More flexibility:** Sharing economy platforms offer consumers more flexibility than traditional businesses. For example, consumers can choose to rent a car for a few hours or days, instead of having to buy a car and commit to long-term ownership costs. Customers who use these services may save money on expenditures such as vehicle ownership, maintenance, and fuel.
- **Access to underutilized assets:** Sharing economy platforms allow consumers to access underutilized assets, such as cars, homes, and tools, at a lower cost than buying these assets themselves.

Overall, the sharing economy is having a positive impact on consumers by providing them with access to cost-effective alternatives that are typically less expensive than traditional solutions.

5.2.1.4 Fostering Entrepreneurship and Innovation

The sharing economy fosters entrepreneurship by providing a platform for individuals to start their own enterprises with less entry restrictions [61]. This model eliminates the need for large initial investments and infrastructure, making it more accessible to would-be entrepreneurs.

Here are some specific examples of how the sharing economy is fostering entrepreneurship and innovation:

- **Ride-sharing platforms:** Ride-sharing platforms, such as Uber and Lyft, have enabled millions of people to start their own ride-sharing businesses with relatively low upfront costs. This has led to a significant increase in the number of ride-sharing drivers on the road, which has made ride-sharing more convenient and affordable for consumers.
- **Home-sharing platforms:** Home-sharing platforms, such as Airbnb, have enabled millions of people to start their own home-sharing businesses with relatively low upfront costs. This has led to a significant increase in the

number of home-sharing listings available, which has made home-sharing more convenient and affordable for travelers.

- **Freelance marketplaces:** Freelance marketplaces, such as Upwork and Fiverr, have enabled millions of people to start their own freelance businesses with relatively low upfront costs. This has led to a significant increase in the number of freelancers available for hire, which has made it easier and more affordable for businesses to find the talent they need.
- **Crowdfunding:** Crowdfunding systems, help entrepreneurs by allowing them to raise funds from a large number of people, reducing their reliance on traditional sources of money. Kickstarter, IndieGoGo, GoFundMe are the prominent examples of crowdfunding platforms.

Overall, the sharing economy, by promoting entrepreneurship, not only allows people to follow their company ideas, but it also stimulates innovation and economic vitality. As a result, the corporate landscape becomes more varied and robust.

5.2.1.5 Increase Economic Activity

The sharing economy stimulates economic growth in two keyways [62]. The sharing economy stimulates economic growth in two keyways:

- **By increasing the utilization of assets:** The sharing economy allows people to share assets, such as cars, homes, and tools, with others. This increases the utilization of these assets, which leads to increased economic activity. For example, when a person rents out their spare bedroom on Airbnb, they are increasing the utilization of their home asset. This generates income for the person and creates economic activity for the local economy, such as spending on food, transportation, and entertainment.
- **By creating new jobs and opportunities:** The sharing economy creates new jobs and opportunities for people in several ways. For example, people can work as drivers for ride-sharing platforms, hosts for home-sharing platforms, or taskers for freelance marketplaces. The sharing economy also creates new jobs for people who work for the sharing economy platforms themselves. For

example, Airbnb employs thousands of people around the world in a variety of roles, such as software engineering, customer service, and marketing.

This enables quick experimentation, refining, and adaptation based on real-world input, which is essential for economic innovation and progress. In essence, the sharing economy promotes economic growth by increasing economic activity and providing an ideal environment for testing and refining market products.

Increased economic activity can have several other economic benefits, such as:

- **Increased tax revenue:** When economic activity increases, businesses earn more profits and individuals earn more income. This leads to increased tax revenue for governments.
- **Improved government services:** Governments can use the increased tax revenue from economic activity to improve public services, such as education, healthcare, and infrastructure.
- **Reduced poverty and inequality:** Economic growth can help to reduce poverty and inequality by creating new jobs and opportunities for people.

Overall, the sharing economy is having a positive impact on economic activity by increasing the utilization of assets and creating new jobs and opportunities. This impact is likely to grow in the coming years as the sharing economy continues to grow and develop. Furthermore, increased economic activity is an important economic benefit of the sharing economy. It can lead to increased tax revenue, improved government services, and reduced poverty and inequality.

5.2.2 Negative Economic Impacts

The sharing economy can contribute to job insecurity for some workers who lack traditional employment benefits and protections. The following are few of the most common negative economic impacts associated with sharing economy platforms.

5.2.2.1 Displacement of Traditional Industries

The sharing economy has the potential to disrupt existing businesses, resulting in job displacement and, in some situations, potential economic instability [1]. This disruption can lead to job displacement in some industries, as businesses are forced to adapt to the new competition. In some cases, this disruption can also lead to

potential economic instability, as businesses and workers struggle to adjust to the new market conditions.

Here are some specific examples of how the sharing economy has disrupted traditional industries:

- Transportation: Ride-sharing platforms such as Uber, BlaBla Car and Lyft have disrupted the taxi industry. As consumers increasingly turn to these alternative services, it can lead to reduced demand for traditional taxi services, potentially resulting in job losses within the sector.
- Hospitality: Home-sharing platforms such as Airbnb have disrupted the hotel industry.
- Retail: Peer-to-peer lending platforms such as Lending Club have disrupted the traditional banking industry.
- Transportation: Online food delivery platforms such as Wolt, Foodira, DoorDash and Grubhub have disrupted the restaurant industry.

Overall, the disruption caused by the sharing economy can also lead to potential economic instability. For example, if a large number of taxi drivers are displaced by ride-sharing platforms, this can lead to a decrease in consumer spending in the local economy. Similarly, if a large number of hotel employees are displaced by home-sharing platforms, this can lead to a decrease in tourism revenue in the local economy. The displacement of traditional industries is a potential economic impact of the sharing economy. It is important to carefully consider this impact as the sharing economy continues to grow and develop.

5.2.2.2 Damage of Consumer Rights and Quality Standards

The sharing economy might raise concerns about compromised consumer rights and quality standards in some circumstances [63]. This is because the sharing economy is often characterized by a lack of regulation and oversight, and by the fact that transactions are often conducted between individuals rather than between businesses and consumers.

Here are some specific examples of how the sharing economy can damage consumer rights and quality standards:

- **Safety concerns:** Consumers may be at risk of safety hazards when using sharing economy platforms, such as ride-sharing platforms or home-sharing platforms. For example, a ride-sharing driver may have a poor driving record, or a home-sharing host may not properly maintain their property.
- **Lack of transparency:** Sharing economy platforms may not be transparent about the risks and liabilities associated with using their services. For example, a ride-sharing platform may not disclose that drivers are not covered by commercial insurance.
- **Difficulty resolving disputes:** Consumers may have difficulty resolving disputes with sharing economy platforms or with other users of the platforms. For example, a consumer may have difficulty getting a refund from a home-sharing host if the property is not as described or if the host cancels the reservation at the last minute.

Governments and businesses are taking steps to address these concerns. For example, some governments have implemented regulations that require sharing economy platforms to conduct background checks on drivers and hosts, and to provide insurance coverage for users. Additionally, some sharing economy platforms are developing new dispute resolution mechanisms to help consumers resolve issues more easily.

Overall, the sharing economy has the potential to damage consumer rights and quality standards in some circumstances. It is important for consumers to be aware of the risks before using sharing economy platforms, and to take steps to protect their rights.

5.2.2.3 Income Inequality

The sharing economy offers income-generating opportunities to a wide range of participants; however, it can also exacerbate income inequality due to disparities in access and benefits [64]. For example, people with access to assets, such as cars and homes, are better positioned to benefit from the sharing economy than people who do not have access to these assets. Additionally, the sharing economy can lead to the concentration of wealth in the hands of a few platform owners.

Here are some specific examples of how the sharing economy can exacerbate income inequality:

- **Ride-sharing drivers:** Ride-sharing drivers are typically self-employed and do not receive benefits such as health insurance and paid time off. This can make it difficult for ride-sharing drivers to earn a living wage and support themselves and their families.
- **Home-sharing hosts:** Home-sharing hosts typically receive a higher percentage of the revenue generated from their listings than ride-sharing drivers. However, home-sharing hosts are also responsible for covering the costs of maintaining and cleaning their properties. This can make it difficult for home-sharing hosts to earn a profit, especially in markets where there is a lot of competition.
- **Freelance taskers:** Freelance taskers on platforms such as Upwork and Fiverr often compete for projects at very low rates. This can make it difficult for freelance taskers to earn a living wage, especially in countries with high costs of living.

Moreover, all these hosting platforms has their own commissions from the service providers. For instance, Uber charge This percentage can range from around 15% to 25% from its drivers. Upwork charges freelancers a sliding fee based on their lifetime billings with a specific client. The fee structure is as follows: 20% for the first $500 billed to a client, 10% for lifetime billings with a client between $500.01 and $10,000, 5% for lifetime billings with a client that exceed $10,000. On the other hand, Fiverr charges freelancers a service fee of 20% of the revenue they earn from completed orders. This applies to the first $500 earned per client. Once a freelancer has earned more than $500 with a specific client (a recurring client), the fee is reduced to 5% for that client. [69][70][71]

Overall, the sharing economy has the potential to exacerbate income inequality due to disparities in access and benefits. It is important to carefully consider these disparities as the sharing economy continues to grow and develop.

5.2.2.4 Unpredictable Income

Participation in the sharing economy typically exposes individuals to income instability and insecurity, due to the irregular and unexpected nature of revenues within these platforms [64]. Unlike traditional employment with established salary, revenue in the sharing economy can vary dramatically from month to month, making it challenging for participants to predict and organize their finances.

There are several factors that contribute to the unpredictable nature of income in the sharing economy. These factors include:

- **Seasonality:** Demand for sharing economy services often varies depending on the season. For example, ride-sharing drivers may earn more money during the summer months when people are more likely to travel.
- **Competition:** Sharing economy platforms are often highly competitive. This can make it difficult for individuals to earn a consistent income, as they may need to lower their prices or offer additional incentives to attract customers.
- **Platform policies:** Sharing economy platforms can change their policies at any time, which can impact the earnings of participants. For example, a ride-sharing platform may decide to reduce the commission it pays to drivers.

The unpredictable nature of income in the sharing economy can make it difficult for individuals to budget and plan for the future. It can also lead to financial stress and anxiety.

Here are some specific examples of how the unpredictable nature of income in the sharing economy can impact individuals:

- A ride-sharing driver may earn a significant amount of money on a Friday night, but very little money on a Monday morning.
- A home-sharing host may earn a lot of money during the summer months, but very little money during the winter months.
- A freelance tasker may earn a lot of money one month, but very little money the next month.

This financial insecurity can make budgeting, saving, and long-term financial planning difficult, thereby affecting an individual's overall financial well-being. The

absence of standard work benefits such as health insurance and retirement plans add to this sense of instability. As a result, participants often need to adopt strategies to cope with the income variability, such as diversifying their income sources or relying on multiple sharing economy platforms to mitigate the financial risks associated with this earning model.

5.2.2.5 Market Concentration

The sharing economy is sometimes characterized by the dominance of a small number of significant enterprises, which can result in market concentration and monopolistic tendencies [17]. When a few businesses possess enormous market power, they might use it to their advantage to influence prices, terms of service, and market dynamics, possibly limiting fair competition.

Here are some specific examples of market concentration and monopolistic tendencies in the sharing economy:

- **Ridesharing:** Uber and Lyft dominate the ride-sharing market in most countries. This gives them significant market power, which they have used to increase prices and reduce driver pay.
- **Home-sharing:** Airbnb dominates the home-sharing market in most countries. This gives it significant market power, which it has used to increase prices and reduce host earnings.
- **Food delivery:** Wolt, Foodora, DoorDash and Grubhub dominate the food delivery market in most countries. This gives them significant market power, which they have used to increase prices and reduce restaurant profits.

Market concentration and monopolistic tendencies in the sharing economy can have several negative consequences, including:

- **Higher prices for consumers:** When a small number of platforms dominate the market, they can charge higher prices for their services. This is because consumers have fewer choices and are less likely to be able to find a better deal.
- **Lower quality standards:** When platforms have excessive market power, they may be less likely to invest in improving the quality of their services.

This is because they know that consumers will continue to use their services even if the quality is not good.

- **Reduced innovation:** When platforms have excessive market power, they may be less likely to innovate. This is because they do not have to worry about competing with other platforms.
- **Reduced competition:** When a small number of platforms dominate the market, it can be difficult for new platforms to enter the market. This is because new platforms must compete with well-established platforms that have a large user base and a lot of resources.

Governments and regulators are taking initiatives to address the problem of monopolistic tendencies and market concentration in the sharing economy. Some countries, for example, have enacted legislation requiring sharing economy platforms to be clearer about their pricing and practices. To encourage competition, several governments are considering splitting up huge sharing economy platforms.

In the end, market concentration and monopolistic tendencies in the sharing economy are becoming increasingly problematic. To protect consumers and foster competition, governments and regulators must take action to solve this issue.

5.2.3 Conclusion

In conclusion, the sharing economy critical social and economic impact. It is a multifaceted phenomenon with both positive and negative social impacts. On the positive side, it has the potential to foster community building, increase social cohesion, support local economies, enhance transparency and accountability, and provide individuals with flexibility and independence in their work. The sharing economy promotes trust and cooperation among individuals and allows for the efficient use of resources, redefining the concept of ownership.

However, there are negative aspects to consider as well. Discrimination remains a concern within sharing economy platforms, potentially leading to exclusion and unwelcome experiences. Furthermore, the lack of social security benefits for workers, often classified as independent contractors, raises issues of financial security. The distinction between the sharing economy and the gig economy can lead to confusion, affecting job security and worker benefits. Trust issues,

particularly dealing with strangers, pose risks to users of sharing economy platforms.

On the other hand, the sharing economy has undeniably left a significant mark on the economic landscape, bringing forth both positive and negative impacts. On the positive side, it has championed increased resource utilization and efficiency, allowing individuals to monetize underutilized assets, leading to not only income generation but also a more sustainable approach to consumption. The sharing economy has also acted as a catalyst for job creation, offering flexible income opportunities to countless individuals and bolstering overall economic growth. Additionally, it has provided consumers with cost-effective alternatives, promoting affordability and financial savings.

However, the sharing economy is not without its drawbacks. It has the potential to displace traditional industries, leading to job losses and potential economic instability in certain sectors. The lack of regulation and oversight in the sharing economy can also compromise consumer rights and quality standards, raising concerns about safety, transparency, and dispute resolution. Moreover, the sharing economy can exacerbate income inequality, as access and benefits are not evenly distributed, and participants often face unpredictable income, causing financial insecurity and instability. Market concentration and monopolistic tendencies among a few major players can further impact consumers through higher prices, reduced quality standards, and limited competition.

As the sharing economy continues to evolve, it is crucial for governments, businesses, and consumers to address these challenges and benefits comprehensively. Striking a balance that promotes economic growth and fairness while protecting the rights and well-being of all participants is paramount for the sustainable growth of the sharing economy. Careful consideration of these issues is necessary to ensure a more equitable and inclusive society that thrives economically and socially in the era of sharing.

6 FINDINGS

The main goal of this chapter is to present a brief and comprehensive overview of the key findings gathered from the comprehensive literature review on the environmental impacts of sharing economy on all selected domains. In simple terms, it serves as a comprehensive summary of the extensive body of knowledge accumulated through the detailed review process.

Domains	Key Positive Findings	Key Negative Findings
Accommodation	▪ Resource Efficiency and Waste Reduction ▪ Reduced Carbon Footprint ▪ Social and Behavioral Change ▪ Community Building and Local Connections	▪ Increased Energy Consumption ▪ Rebound Effect ▪ Regulatory Challenges and Enforcement ▪ Waste Management
Transportation	▪ Reduced Use of the Automobile ▪ Resource Optimization ▪ Enhanced asset utilization ▪ Sustainable Tourism ▪ Behavior Change	▪ Rebound Effect ▪ Overconsumption of Resources ▪ Environmental Externalities ▪ Energy and Resource Intensity
Food- delivery	▪ Reduction in Personal Vehicle Use ▪ Efficient Delivery Logistics ▪ Support for Local Businesses and Sustainable Practices ▪ Waste Reduction through Resource Optimization ▪ Increased Consumer Awareness and Education	▪ Packaging Waste ▪ Increased Energy Consumption ▪ Traffic Congestion ▪ Dependency on Disposable Utensils ▪ Potential for Food Waste
Other	▪ Resource Efficiency ▪ Waste Reduction	▪ Increased resource consumption

	▪ Lower Carbon Footprint ▪ Sustainable Consumption ▪ Community Building	▪ Greenhouse gas emissions ▪ Waste generation ▪ Energy consumption ▪ Displacement of sustainable alternatives ▪ E-waste generation

Table 4: Key Findings on environmental impact

Sectors	Key Positive Findings	Key Negative Findings
Social	▪ Community Building ▪ Increase social cohesion ▪ Support for local economic Increased transparency and accountability ▪ Flexibility and Independence	▪ Discrimination ▪ Decreased Social Security ▪ Gig Economy Confusion ▪ Trust Issues ▪ Empowerment Concerns
Economic	▪ Increased Resource Utilization and Efficiency ▪ Job Creation and Income Generation ▪ Cost Savings for Consumers ▪ Fostering Entrepreneurship and Innovation ▪ Increase Economic Activity	▪ Displacement of Traditional Industries ▪ Damage of Consumer Rights and Quality Standards ▪ Income Inequality ▪ Unpredictable Income ▪ Market Concentration

Table 5: Key Findings on Social and Economic impact

While the sharing economy's environmental aspects are the primary focus of this thesis, it also explores its social and economic dimensions. Given that the sharing economy is fundamentally linked to activities that have an influence on the environment, this chapter will discuss research findings on both positive and negative environmental, social, and economic impacts.

6.1 Positive Findings

This section discusses the positive environmental, social, and economic impacts of sharing economy.

6.1.1 Positive Finding on Environmental Context

During my comprehensive analysis on the chosen articles and journals, I have come across several findings that highlight the positive environmental impact of the sharing economy. The sharing economy, characterized by collaborative consumption and resource sharing, has emerged as a potential solution to environmental challenges. It promotes sustainable resource utilization, reduces waste, and encourages more efficient consumption patterns.

One prominent finding from the search is the potential of the sharing economy to enhance resource efficiency and sustainability. By facilitating the sharing of underutilized assets through online platforms, the sharing economy promotes the optimal use of resources and reduces waste. This approach can lead to a significant reduction in environmental impact, as fewer resources are required to meet consumer needs. Additionally, the sharing economy encourages a shift towards access-based consumption models, which can reduce the overconsumption and rapid depletion of scarce natural resources.

Another significant finding is the role of the sharing economy in promoting sustainable transportation. Through ridesharing and car-sharing platforms, the sharing economy offers alternatives to traditional individual car ownership. These platforms enable more efficient use of vehicles, reducing the number of cars on the road and decreasing traffic congestion. As a result, emissions from transportation can be significantly reduced, contributing to improved air quality and a smaller carbon footprint.

Furthermore, the sharing economy has been found to foster a sense of community and social unity, which in turn can have positive environmental outcomes. When people engage in sharing practices, such as tool libraries, community gardens, or co-housing, they often develop stronger social connections and a greater sense of responsibility towards their local environment. This increased sense of community can lead to collective actions for environmental conservation and sustainable practices, such as recycling initiatives or neighborhood clean-up campaigns.

Additionally, the sharing economy has the potential to disrupt traditional production and consumption patterns, reducing the demand for new products and the associated environmental impact. By promoting the use of second-hand goods, sharing

platforms contribute to the circular economy principles, where resources are kept in use for longer periods. This approach reduces the need for extracting raw materials and manufacturing new products, resulting in reduced energy consumption and lower greenhouse gas emissions.

Finally, the search findings indicate that the positive environmental impact of the sharing economy extends beyond individual sectors. Collaborative consumption models have been found to have a significant influence on energy consumption, waste reduction, and sustainable housing practices. By encouraging resource sharing and access over ownership, the sharing economy has the potential to contribute to a more sustainable and environmentally friendly society across various domains.

The positive environmental impact of the sharing economy is evident. The sharing economy promotes resource efficiency, reduces waste, encourages sustainable transportation, fosters community engagement, and contributes to the circular economy. However, it is important to recognize that challenges and regulatory issues exist, which need to be addressed to fully realize the potential of the sharing economy for positive environmental outcomes. Further research and collaboration among stakeholders are necessary to ensure the long-term sustainability and scalability of the sharing economy's environmental benefits.

6.1.2 Positive Finding on Social Context

The sharing economy has had a profound and positive impact on various aspects of society. It has strengthened communities by fostering trust and cooperation among individuals who engage in peer-to-peer exchanges, resulting in increased social interaction and collaboration. Moreover, the sharing economy has promoted inclusivity by expanding economic opportunities to a wider range of participants, emphasizing a more collaborative and sustainable approach to ownership.

Furthermore, the sharing economy has enhanced social cohesion by enabling interactions and trust-building between strangers, thanks to user profiles, references, and rating systems. This, in turn, has led to more meaningful social interactions and the development of trust on platforms like Couchsurfing. Additionally, the sharing economy supports local economies by connecting people with local businesses and service providers, creating economic opportunities and a more vibrant local economy.

Lastly, the implementation of rating systems and feedback mechanisms has increased transparency and accountability on sharing economy platforms, ensuring trust and safety for all participants. This positive impact, combined with the flexibility and independence offered by the sharing economy, has empowered individuals to start their own businesses using personal assets, contributing to a more decentralized and collaborative economic landscape. Overall, the sharing economy has demonstrated its potential to create a more connected, inclusive, and equitable society.

6.1.3 Positive Finding on Economic Context

The positive economic impacts of the sharing economy are profound and multifaceted. Firstly, it promotes efficient resource utilization by turning underutilized assets like cars and homes into income-generating resources, fostering a more sustainable and eco-friendly approach to consumption.

Secondly, the sharing economy drives job creation and income generation by offering flexible job opportunities through platforms like Uber and TaskRabbit, thus benefiting both individuals and the overall economy. This also contributes to economic growth and reduces income inequality.

Furthermore, the sharing economy provides cost savings for consumers through affordable alternatives such as ride-sharing services and tool-sharing platforms. Additionally, it fosters entrepreneurship and innovation by lowering entry barriers for individuals to start their own businesses. This results in a diverse and dynamic economic landscape.

In essence, the sharing economy is a transformative force in the economy, encouraging efficient resource use, job creation, affordability, and entrepreneurial growth, ultimately leading to economic progress and vitality.

6.2 Negative Findings

This section discusses the positive environmental, social, and economic impacts of sharing economy.

6.2.1 Negative Finding on Environmental Context

During my comprehensive review of the selected articles and journals, I have identified several concerning findings regarding the negative environmental impact of the sharing economy. While the sharing economy is often lauded for its potential to promote sustainability, there are certain aspects that warrant careful consideration and mitigation to avoid unintended environmental consequences.

One significant finding is the increased energy consumption associated with the sharing economy. Shared resources, such as vehicles and accommodations, may experience higher usage rates, leading to increased energy requirements for maintenance, transportation, and operation. This heightened energy consumption could offset the potential environmental benefits that sharing economy platforms aim to achieve. It is crucial to develop strategies that promote energy-efficient practices and encourage the use of renewable energy sources within the sharing economy framework.

Another concern revolves around the excessive waste generated by the sharing economy. While the sharing of resources can reduce the demand for new products, it does not eliminate waste entirely. Studies have highlighted instances where shared items, particularly in the context of short-term rentals and peer-to-peer exchanges, experience higher wear and tear, leading to increased waste generation. Proper disposal and recycling mechanisms should be in place to address this issue and minimize the environmental impact associated with sharing economy-related waste.

Furthermore, the sharing economy can contribute to increased traffic congestion and emissions in certain scenarios. For instance, ride-sharing services may lead to a higher number of vehicles on the road, resulting in increased traffic congestion and carbon emissions. Additionally, the convenience and affordability of sharing economy platforms may encourage more frequent and unnecessary trips, further exacerbating the environmental impact. Balancing the benefits of accessibility and convenience with measures to reduce congestion and promote sustainable transportation options is crucial in mitigating this negative consequence.

An important consideration is the potential displacement of traditional businesses and the subsequent loss of jobs. When established industries, such as traditional hotels and taxis, face competition from sharing economy platforms, there can be

economic and environmental repercussions. Displaced workers may struggle to find alternative employment, leading to potential financial hardships and an overall negative impact on local economies. This can result in increased social and environmental challenges, such as increased poverty rates and limited access to essential resources.

Lastly, the regulatory challenges surrounding the sharing economy can impede effective environmental management. The decentralized nature of sharing economy platforms makes it challenging to enforce environmental regulations consistently. Issues such as safety standards, waste management, and emissions control can be difficult to regulate within a rapidly evolving sharing economy landscape. Developing robust and adaptive regulatory frameworks that address environmental concerns while fostering innovation and economic growth is crucial to mitigating the negative environmental impacts associated with the sharing economy.

In conclusion, my analysis has revealed several significant findings highlighting the potential negative environmental impact of the sharing economy. Increased energy consumption, waste generation, traffic congestion, job displacement, and regulatory challenges pose environmental concerns that should be addressed to ensure the sustainable development of the sharing economy. By acknowledging and actively mitigating these negative consequences, policymakers, industry stakeholders, and society at large can work together to maximize the positive environmental impact while minimizing the drawbacks of the sharing economy.

6.2.2 Negative Finding on Social Context

The sharing economy brings forth notable negative social impacts that need careful attention. Discrimination on sharing economy platforms, such as Airbnb and Uber, poses a significant problem, affecting minority groups and women. This can hinder access to services and create an unwelcoming atmosphere, highlighting the need for anti-discrimination policies and user education.

Another pressing issue is the decreased social security faced by many sharing economy workers, often classified as independent contractors. This classification renders them ineligible for vital benefits, potentially leading to financial insecurity during illness or retirement. Addressing this issue requires rethinking the eligibility criteria for social security benefits in the context of the sharing economy.

The confusion between the sharing economy and the gig economy further complicates matters, with implications for job security, benefits, and worker classification. Policymakers and platforms must work to provide clarity and ensure that workers' rights are protected in these evolving work arrangements. In conclusion, while the sharing economy offers various benefits, it also brings forth challenges and concerns that require thoughtful solutions to guarantee the well-being of all participants.

6.2.3 Negative Finding on Economic Context

The economic impacts of the sharing economy come with several significant drawbacks. Firstly, the potential displacement of traditional industries by sharing economy platforms can lead to job losses and economic instability, as businesses struggle to adapt to new competition. Secondly, the lack of regulation and oversight in the sharing economy may compromise consumer rights and quality standards, resulting in safety hazards and difficulties in dispute resolution. Additionally, income inequality can be exacerbated due to disparities in access to assets and benefits, concentrating wealth among a few platform owners.

Another challenge lies in the unpredictable nature of income in the sharing economy, causing financial insecurity and stress for participants as their earnings can fluctuate dramatically. Lastly, market concentration and monopolistic tendencies, where a few dominant sharing economy platforms hold significant market power, can lead to higher prices, reduced service quality, limited innovation, and less competition, ultimately negatively impacting consumers and smaller businesses. Policymakers and regulators should address these concerns to foster a more balanced and equitable sharing economy landscape.

6.3 Future Research Directions

There are overwhelming number of research has been done previously on the environmental impact of sharing economy. However, there are several gaps and areas for further research regarding this topic which I have realize during my research. Exploring these areas in more depth can provide valuable insights and contribute to a better understanding of the topic.

One area that requires further investigation is the long-term environmental implications of the sharing economy. While there are studies highlighting the positive environmental benefits, there is a need for more comprehensive research that examines the lifecycle analysis of shared resources. Understanding the complete environmental footprint, including the production, maintenance, and disposal stages, can provide a more accurate assessment of the sharing economy's overall impact. Additionally, investigating the potential rebound effects, where efficiency gains are offset by increased consumption, can shed light on the true sustainability of sharing economy practices.

Another important research gap lies in the socio-environmental dynamics within the sharing economy. While the environmental impact is a significant aspect, it is crucial to examine the social and economic implications as well. Further research can focus on understanding how sharing economy platforms influence social behaviours, community resilience, and income distribution. Exploring the role of trust, cooperation, and reciprocity in the sharing economy can provide valuable insights into fostering sustainable practices and addressing potential inequalities. Moreover, investigating the potential for conflicts between sharing economy practices and local regulations can contribute to developing effective governance frameworks that balance environmental concerns and socio-economic benefits.

On the other hand, research on the social and economic impact of the sharing economy has made significant progress, but there are some important gaps that require further study. One gap is understanding the long-term effects of the sharing economy on traditional industries and labour markets. Most research has focused on immediate disruptions, but we need more insight into how these changes will play out over time, which is crucial for policy and workforce planning.

Another gap regarding the social and economic impact of the sharing economy is investigating regional and global variations in the sharing economy's impact. Existing studies often concentrate on urban areas, overlooking differences in rural or less-developed regions. It's essential to understand how the sharing economy interacts with diverse economic, cultural, and infrastructural contexts. Additionally, we need to explore how sharing economy platforms may affect income distribution and inequality. Addressing these gaps will provide a more comprehensive

understanding of the sharing economy's effects, helping decision-makers make informed choices as it continues to evolve.

In conclusion, despite the overwhelming number of existing research on the environmental impact of the sharing economy, there are gaps and areas that need to be explored further. Conducting studies that dive into the complete lifecycle analysis of shared resources and exploring the socio-environmental dynamics within the sharing economy can provide a more comprehensive understanding of its overall sustainability. By addressing these research gaps, we can develop evidence-based strategies and policies that maximize the positive environmental impact of the sharing economy while mitigating potential drawbacks.

7 DISCUSSION

In this chapter of the thesis, I focus on examining the potential and viable solutions derived from my research findings regarding the detrimental environmental effects of the sharing economy. The aim is to delve into the implications of this impact and propose suitable remedies. By discussing the identified issues in depth, I explore avenues for mitigating the negative consequences on the environment. This chapter serves as a platform to analyze the environmental challenges associated with the sharing economy and offers potential solutions to address them. The objective is to contribute to the ongoing conversation on sustainability within the sharing economy through a comprehensive examination of my findings.

7.1 Discussion on Potential Solution of Challenges

I have gathered valuable insights on how to address the negative environmental impact of the sharing economy and transition it towards sustainability. By implementing proactive measures and adopting sustainable practices, we can mitigate the drawbacks associated with the sharing economy and ensure its long-term positive impact on the environment.

One effective strategy is to promote energy efficiency within the sharing economy. Encouraging sharing platforms to prioritize energy-efficient technologies and practices can help reduce the overall energy consumption associated with shared resources. This can include incentivizing the use of electric or hybrid vehicles, promoting energy-efficient appliances in shared accommodations, and encouraging providers to adopt sustainable energy sources. Additionally, educating users about energy-saving practices and incorporating energy monitoring systems can raise awareness and facilitate responsible energy consumption.

Another vital aspect is waste management. Developing robust waste reduction and recycling programs within the sharing economy can help minimize environmental impact. Sharing platforms can collaborate with recycling facilities and provide guidelines for proper waste disposal. Emphasizing the importance of responsible consumption and encouraging providers and users to prioritize durable and sustainable products can reduce waste generation. Platforms can also facilitate the

recycling or repurposing of shared items at the end of their lifecycle, ensuring a more circular and sustainable approach to resource utilization.

To address the issue of increased traffic congestion and emissions, promoting sustainable transportation options is crucial. Sharing platforms can incentivize the use of public transportation, cycling, or walking for shorter distances. Encouraging ride-sharing services to prioritize fuel-efficient or electric vehicles and supporting the development of shared mobility infrastructure can further reduce the environmental impact of transportation within the sharing economy. Additionally, implementing dynamic pricing mechanisms that discourage unnecessary trips and promote carpooling can contribute to more sustainable mobility patterns.

Supporting the affected workforce and local economies is another important consideration. As the sharing economy disrupts traditional industries, it is essential to provide support for workers transitioning into new employment opportunities. Initiatives such as retraining programs, skill development, and entrepreneurship support can assist those affected by the transformation. Moreover, fostering collaboration between sharing platforms and traditional businesses can help create synergies that benefit both parties, ensuring a more sustainable and inclusive sharing economy.

Lastly, establishing clear and adaptable regulatory frameworks is crucial for managing the environmental impact of the sharing economy effectively. Policymakers should collaborate with industry stakeholders, environmental experts, and communities to develop comprehensive regulations that address environmental concerns while fostering innovation and economic growth. Regular monitoring and evaluation of the sharing economy's environmental performance can help identify areas for improvement and inform future policy decisions. Flexibility in regulations is necessary to accommodate the evolving nature of the sharing economy and its environmental challenges.

Finally, there are several actionable strategies to make the sharing economy more sustainable and mitigate its negative environmental impact. Prioritizing energy efficiency, implementing waste reduction, and recycling programs, promoting sustainable transportation options, supporting affected workers and local economies, and establishing adaptive regulatory frameworks are key steps in achieving a more

sustainable sharing economy. By collectively addressing these challenges, we can ensure the sharing economy aligns with sustainable principles and contributes positively to the environment and society at large.

7.2 Comparison With Previous Studies

The field of research regarding the environmental impact of the sharing economy is extensive and encompasses numerous studies. Researchers have devoted significant attention to exploring how the sharing economy affects the environment.

Previously, it has been noted that a significant portion of the research conducted in this area specifically focuses on analyzing the environmental sustainability of the sharing economy in three primary sectors: Accommodation, Transportation, and Food-delivery. These sectors have been identified as having substantial environmental implications within the sharing economy model.

Certain studies take a comprehensive approach by examining elements from all three sectors (Accommodation, Transportation, and Food-delivery) together. Additionally, there are studies that investigate the environmental aspects of the sharing economy by considering a combination of any two of these sectors. This approach allows for a more holistic understanding of the environmental impacts across multiple sectors.

During the process of searching for pertinent articles to support this thesis, I encountered difficulties in locating literature that specifically addresses the environmental aspects of the sharing economy in sectors beyond the primary sectors of Accommodation, Transportation, and Food-delivery. This scarcity of literature makes it challenging to explore the environmental implications of the sharing economy in sectors that have not received as much research attention.

On the other hand, to ensure the development of this thesis, I undertook an extensive review of articles and journals that were highly relevant and potentially recently published. I engaged in a comprehensive exploration of these sources, meticulously extracting the most pertinent information related to the research topic at hand. This diligent approach allowed me to gather a wealth of valuable insights from the literature.

Furthermore, I conducted a thorough analysis of the existing literature, specifically focusing on the environmental aspects of the sharing economy. This analysis went beyond the conventional domains of Accommodation, Transportation, and Food-delivery, allowing me to investigate and understand the broader range of sectors impacted by the sharing economy from an environmental perspective. This comprehensive analysis provided valuable insights into the environmental implications across diverse sectors.

As a result of the extensive research and analysis conducted, this thesis provides a comprehensive understanding of the environmental implications associated with the sharing economy. It goes beyond a narrow focus on specific sectors and instead offers insights that span a broad spectrum of sectors. By considering the environmental impact across multiple sectors, this thesis provides a holistic view of the overall implications of the sharing economy on the environment.

This thesis is characterized by its effective integration of information from diverse and reliable sources. By drawing upon a wide range of credible materials, it ensures the inclusion of various perspectives and insights into the analysis. This comprehensive approach sets it apart from other studies in the field, as it offers a more extensive and nuanced analysis of the research question.

7.3 Limitations

The sharing economy has emerged as a highly popular and researched topic in recent times, primarily due to the widespread availability of the internet and smart devices. This extensive research has yielded a wealth of valuable insights within the domain. However, the sheer volume of research can sometimes pose challenges in extracting useful information and locating the most relevant articles. During my literature review for this thesis, I encountered several issues in this regard.

One significant challenge is the overwhelming abundance of literature on the sharing economy. Almost all articles and journals touch upon its sustainability aspects to some degree. As a result, finding the precise articles needed can be exceedingly difficult. Even narrowing down the search criteria often proves

insufficient, as numerous duplicate articles across different sites and irrelevant publications exist.

Another limitation I encountered was the lack of detailed articles exploring business or service sectors beyond the accommodation, transportation, and food-delivery industries, which are the primary focus of existing research. This dearth of information hampers a comprehensive understanding of the sharing economy across various domains. To address this limitation, it is crucial to conduct in-depth research on other sectors, such as storage sharing, workplace sharing, and identify potential future domains that can be encompassed under the sharing economy umbrella.

Considering the growing demand for sharing economy platform-based businesses and their environmental implications, I would recommend conducting extensive research on other domains, such as storage sharing and workplace sharing. Additionally, it is essential to explore potential future domains that can be integrated into the sharing economy model. Furthermore, researchers should focus on developing strategies to mitigate the negative impact of existing sharing economy platforms, aiming to maintain sustainability and further enhance the environmental well-being of our ecosystem.

CONCLUSION

The environmental impact of the sharing economy is a critical area of research that has garnered significant attention in recent years. This thesis has shed light on various aspects of this topic, leading to a deeper understanding of its implications. The findings highlight both the positive and negative environmental impacts associated with the sharing economy, emphasizing the need for sustainable practices and effective regulations to mitigate its overall impact.

One key finding of this thesis is the potential environmental benefits offered by the sharing economy. By enabling the shared use of underutilized resources, such as vehicles, accommodations, food-delivery, and other assets, the sharing economy can contribute to reduced energy consumption, waste generation, and carbon emissions. This can lead to significant environmental savings and contribute to a more sustainable future.

However, it is crucial to acknowledge the potential challenges and drawbacks associated with the sharing economy's environmental impact. Increased convenience and accessibility provided by sharing economy platforms may lead to greater overall consumption and a rebound effect, counteracting some of the positive environmental gains. This highlights the importance of promoting responsible consumption patterns and addressing the potential risks of excessive resource use within the sharing economy ecosystem.

Effective regulatory frameworks are essential in managing and mitigating the environmental impact of the sharing economy. The need for governments and policymakers to collaborate with sharing economy platforms, environmental organizations, and other stakeholders to develop and enforce regulations that promote sustainability. By implementing measures such as waste management protocols, emissions control standards, and sustainable practices, the negative environmental externalities can be minimized.

Technological advancements also play a significant role in enhancing the environmental sustainability of the sharing economy. The potential of emerging technologies, such as electric vehicles, renewable energy sources, and smart infrastructure, to reduce the carbon footprint associated with sharing economy

activities. Adopting these innovations can further contribute to a greener sharing economy, making it an even more viable alternative to traditional consumption patterns.

Therefore, it is crucial to find the accurate answer for the research question of this thesis. It is important to note that the impact of the sharing economy on the environment is a complex and quite issue. It would be inaccurate to categorize the sharing economy as solely "good" or "bad" for the environment. The impact of the sharing economy on the environment depends on various factors, including the specific context, the type of sharing economy activities, and the implementation of sustainable practices and regulations.

Finally, While the sharing economy has the potential to deliver substantial environmental benefits, it is crucial to address challenges such as increased consumption and rebound effects. By implementing sustainable practices, developing effective regulations, and embracing technological innovations, we can harness the potential of the sharing economy to build a more environmentally conscious society. The collaborative efforts among sharing economy platforms, governments, environmental organizations, and individuals can ensure a sustainable future for all. However, additional research is required to explore areas beyond accommodation, transportation, and food-delivery. Additional research should be conducted on waste reduction, sustainable energy consumption, and promote recycling. This research will help ensure greater environmental benefits and overall sustainability of the sharing economy.

7.4 Researcher's Reflection and Insights

After thorough research on the environmental impact and sustainability of the sharing economy, combined with my professional experience, I have drawn a conclusion regarding the environmental sustainability of the sharing economy business model and its alignment with the conditions outlined in the ESG framework of United Nations from the socio-economic aspect.

In my research, I have analyzed various dimensions and platforms within the sharing economy, uncovering both positive and negative facets. Upon closer

examination, I observed that nearly all the identified positive aspects face challenges posed by corresponding negative aspects. Some arguments are as follows:

In my research into the environmental impact of the sharing economy in the transportation sector, I discovered that ridesharing and car-sharing platforms promote sustainable transportation. This is achieved by reducing the number of cars on the road, subsequently mitigating traffic congestion, emissions, and air pollution [21]. Whereas while researching the negative aspects within the same domain, I found that ride-sharing services might contribute to a higher volume of vehicles on the road. This can lead to heightened safety concerns, increased traffic congestion, and elevated carbon emissions [17][23].

As I mentioned earlier in my thesis, I actively engaged in food delivery for a year (see Section 1.3), fostering a first-hand understanding of the sharing economy's environmental impact in the food delivery sector. I discovered a deeper connection with the sector's negative elements based on my professional experience. For instance, when customers utilize platforms like Wolt, Foodora, or Uber Eats, they initiate processes that elevate energy consumption. Ordering involves electronic devices connected to the internet, utilizing apps or webpages linked to servers. The delivery process involves transportation that contributes to carbon emissions and also contributes to packaging waste, involving materials like paper, aluminium foil, and plastic bags and/or boxes [28]. Some deliveries even include single-use cutlery. Additionally, delivery carriers continually drive through the city or area to secure more orders, intensifying energy consumption, traffic congestion, and carbon emissions [31]. Comparatively, customers opting to dine in at a restaurant can help traffic congestion, especially when using public transport. This approach minimizes packaging waste as meals are served on reusable utensils with reusable cutlery, offering a more environmentally sustainable and enjoyable experience with freshly made food.

Within my research, a particularly concerning term has emerged, namely "The Rebound Effect." This concept illustrates how consumers, after saving money through sharing services, may choose to consume additional products or services. This increased consumption can elevate their overall environmental impact, potentially counterbalancing any positive contributions of the sharing economy [20]. For example, individuals may use the money saved from sharing transportation or

renting their space for short-term stays to acquire other carbon-intensive products. Understanding and addressing the rebound effect is crucial in navigating the environmental sustainability of sharing services.

On the other hand, I discovered a lack of alignment with the ESG framework when examining the socio-economic dimension of the sharing economy. As previously mentioned, sharing economy platforms not only exhibit limited environmental friendliness but also demonstrate less favourability toward the social and governance aspects of the ESG framework.

As highlighted under sections 5.2.1 and 5.2.2 of this thesis paper, Social Security benefits can often be inaccessible to workers in the sharing economy. This is since workers in the sharing economy are not considered employees but rather independent contractors. Social Security benefits are normally not available to independent contractors. Furthermore, the dominance of a few major businesses can occasionally be identified as a hallmark of the sharing economy, which can lead to empowerment concerns, market concentration, and monopolistic tendencies.

The concentration of market power and a tendency for monopolistic behaviour may often lead to worker exploitation. Finland's delivery workers were organized at the beginning of 2023. This demonstration was in response to perceived unethical alterations in contract terms and reductions in compensation for delivery workers without leaving any option for negotiation [80][81].

To assess the alignment of the sharing economy with the ESG framework, two brief interviews were conducted (refer to Appendix). One interview was with the Restaurant General Manager of a prominent chain restaurant in Turku, and the other was with the CEO of an Indian Cuisine, who has previous experience owning multiple restaurants. To ensure privacy, their identities are kept confidential. I have considered the following reasons for selecting them for interview:

- **Diversity of Perspectives:** The selected candidates include a representative from a large restaurant chain and a small entrepreneur, providing insights into the sharing economy's impact on both large and small businesses.
- **Proven Expertise:** Both candidates possess extensive experience in navigating the sharing economy platforms, ensuring valuable contributions to the discussion.

- **Real-World Insights:** The candidates' ability to share their experiences before and after adopting sharing economy platforms offers valuable perspectives on the transition and its implications.

The findings indicate that the average monthly percentage of sales generated from online platforms ranges from 30 to 50 percent. Moreover, the interviews revealed that the fees charged by these platforms vary, with a range of 8 to 30 percent of the gross sales. This percentage depends upon the size of the company, providing an opportunity for a little negotiation for larger businesses. However, for smaller companies, the fee tends to fall between 20 to 30 percent, suggesting monopolistic behaviour [83][84].

The concentration and monopolistic nature of the market were evident, particularly for smaller enterprises. Restaurants not participating in these online platforms faced a substantial loss in sales, ranging from 30 to 50 percent [83][84]. The platform owners charge customers service fees and/or delivery charges in addition to the fees collected from vendors. In certain restaurants, opting for dine-in or self-takeaway results in a lower food price compared to the same food ordered through online platforms which is also a form of damaging consumer rights [63].

In conclusion, it is essential to highlight that, despite the sharing economy holding potential for substantial environmental benefits, addressing challenges like increased consumption, and rebound effects is critical. Based on my findings, it appears that sharing economy platforms, at this point, may not be as environmentally sustainable as anticipated. Therefore, the primary focus should be on raising awareness among users to enhance its environmental friendliness.

Moreover, considering the insights from literature reviews and interviews, the sharing economy is not sustainable in socio-economic aspects, particularly in alignment with the ESG framework. It tends to exploit workers, its vendors especially small vendors, and compromise consumer rights that refers to clear violation of ESG framework’s Social (S) and Governance (G) and I have already discussed about the Environmental (E) that also do not in alignment with the ESG guideline. While the sharing economy is a promising sector, further in-depth research is necessary to explore ways to enhance its sustainability through the implementation of strict regulations and controls.

REFERENCES

1. Belk, R. [2014]. You are what you can access: Sharing and collaborative consumption online. *Journal of Business Research*, 67[8], 1595-1600.
2. Cohen, B. [2019]. The sharing economy: A pathway to sustainability or a nightmarish form of neoliberal capitalism? *Ecological Economics*, 155, 235-243.
3. Gössling, S., Scott, D., & Hall, C. M. [2018]. *Tourism and water: Interactions, impacts, and challenges.* Channel View Publications.
4. Hamari, J., Sjöklint, M., & Ukkonen, A. (2015). The sharing economy: Why people participate in collaborative consumption. *Journal of the Association for Information Science and Technology*, *67*(9), 2047–2059. https://doi.org/10.1002/asi.23552
5. Cheng, M., Jin, H., & Huang, S. [2016]. The Sharing Economy as a New Business Mode of Service Industry. *Service Business*, 10[1], 53-72.
6. Bardhi, F., & Eckhardt, G. M. [2017]. Access-Based Consumption: The Case of Car Sharing. *Journal of Consumer Research*, 43[3], 154-178.
7. United Nations. [2015]. Transforming our World: The 2030 Agenda for Sustainable Development. Retrieved from https://sdgs.un.org/2030agenda
8. International Institute for Sustainable Development. [2018]. What Is Sustainable Development? Retrieved from https://www.iisd.org/topic/sustainable-development
9. European Commission. [2019]. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions—The European Green Deal. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019DC0640
10. Simon. [2022, November 18]. The 3 E's of Sustainability explained. Sustainability Success. https://sustainability-success.com/the-3-es-of-sustainability/
11. Turney, S. [2022, December 7]. Systematic review: Definition, example, & guide. Scribbr. https://www.scribbr.com/methodology/systematic-review/
12. Full article: Airbnb and the sharing economy - taylor & francis online. (n.d.-a). https://www.tandfonline.com/doi/full/10.1080/13683500.2022.2122418
13. Peer-to-peer (P2P) accommodation in the Sharing Economy: A Review. (n.d.-c). https://www.tandfonline.com/doi/full/10.1080/13683500.2020.1786505

14. Mont, O., Palgan, Y. V., Bradley, K., & Zvolska, L. (2020). A Decade of the Sharing Economy: Concepts, users, business and Governance Perspectives. *Journal of Cleaner Production*, *269*, 122215. https://doi.org/10.1016/j.jclepro.2020.122215

15. Mi, Z., & Coffman, D. (2019, March 14). The sharing economy promotes sustainable societies. *Nature News*. https://www.nature.com/articles/s41467-019-09260-4/

16. Full article: The sharing economy and the antecedents of resource ... (n.d.-c). https://www.tandfonline.com/doi/full/10.1080/23311975.2021.1997245

17. C. Köbis, N., Soraperra, I., & Shalvi, S. (2020). The consequences of participating in the sharing economy: A transparency-based sharing framework. *Journal of Management*, *47*(1), 317–343. https://doi.org/10.1177/0149206320967740

18. Gerwe, O. (2021). The COVID-19 pandemic and the accommodation sharing sector: Effects and prospects for recovery. *Technological Forecasting and Social Change*, *167*, 120733. https://doi.org/10.1016/j.techfore.2021.120733

19. Sharing Economy and Sustainability: Zooming in on accommodation sector. (n.d.-e). https://www.researchgate.net/publication/286927674_Sharing_Economy_and_Sustainability_Zooming_in_on_Accommodation_Sector

20. *Biggest environmental benefits from the sharing economy to be found in the transport sector*. Nordic cooperation. (n.d.). https://www.norden.org/en/news/biggest-environmental-benefits-sharing-economy-be-found-transport-sector

21. Mouratidis, K., Peters, S., & van Wee, B. (2021). Transportation Technologies, sharing economy, and teleactivities: Implications for built environment and travel. *Transportation Research Part D: Transport and Environment*, *92*, 102716. https://doi.org/10.1016/j.trd.2021.102716

22. Nozari, M. A., Ghadikolaei, A. S., Govindan, K., & Akbari, V. (2021). Analysis of the sharing economy effect on sustainability in the transportation sector using fuzzy cognitive mapping. *Journal of Cleaner Production*, *311*, 127331. https://doi.org/10.1016/j.jclepro.2021.127331

23. Castellanos, S., Grant-Muller, S., & Wright, K. (2021). Technology, transport, and the Sharing Economy: Towards a working taxonomy for shared mobility. *Transport Reviews*, *42*(3), 318–336. https://doi.org/10.1080/01441647.2021.1968976

24. Gansterer, M., Hartl, R. F., & Tzur, M. (2022). Transportation in the sharing economy. *Transportation Science*, *56*(3), 567–570. https://doi.org/10.1287/trsc.2022.1143

25. Perkumienė, D., Vienažindienė, M., & Švagždienė, B. (2021). The sharing economy towards sustainable tourism: An example of an online transport-sharing platform. *Sustainability*, *13*(19), 10955. https://doi.org/10.3390/su131910955

26. Chu, H., Zhang, W., Bai, P., & Chen, Y. (2021). Data-driven optimization for last-mile delivery. *Complex & Intelligent Systems*, *9*(3), 2271–2284. https://doi.org/10.1007/s40747-021-00293-1

27. Chan, H.-L., Cheung, T.-T., Choi, T.-M., & Sheu, J.-B. (2023). Sustainable successes in third-party food delivery operations in the Digital Platform Era. *Annals of Operations Research*. https://doi.org/10.1007/s10479-023-05266-w

28. Jia, S. S., Gibson, A. A., Ding, D., Allman-Farinelli, M., Phongsavan, P., Redfern, J., & Partridge, S. R. (2022). Perspective: Are online food delivery services emerging as another obstacle to achieving the 2030 United Nations Sustainable Development Goals? *Frontiers in Nutrition*, *9*. https://doi.org/10.3389/fnut.2022.858475

29. Li, C., Mirosa, M., & Bremer, P. (2020). Review of online food delivery platforms and their impacts on sustainability. *Sustainability*, *12*(14), 5528. https://doi.org/10.3390/su12145528

30. Sharma, R., Dhir, A., Talwar, S., & Kaur, P. (2021). Over-ordering and food waste: The use of food delivery apps during a pandemic. *International Journal of Hospitality Management*, *96*, 102977. https://doi.org/10.1016/j.ijhm.2021.102977

31. García, S. (2022, June 29). *The negative effects of food delivery: From pollution to malnutrition*. EL PAÍS English. https://english.elpais.com/society/2022-06-29/the-negative-effects-of-food-delivery-from-pollution-from-malnutrition.html#?prm=copy_link

32. Gallego-Schmid, A., Mendoza, J. M., & Azapagic, A. (2019). Environmental impacts of takeaway food containers. *Journal of Cleaner Production*, *211*, 417–427. https://doi.org/10.1016/j.jclepro.2018.11.220

33. Stephens, J., Miller, H., & Militello, L. (2020). Food delivery apps and the negative health impacts for Americans. *Frontiers in Nutrition*, *7*. https://doi.org/10.3389/fnut.2020.00014

34. Symons, A. (2023, June 11). *Where in the world are airbnb-style rentals banned or restricted?*. euronews. https://www.euronews.com/travel/2023/06/11/italy-malaysia-usa-which-cities-and-countries-are-cracking-down-on-airbnb-style-rentals

35. Weijs-Perrée, M., Appel-Meulenbroek, R., Arentze, T., & Romme, G. (2019). The influence of the physical work environment of business centres on social networking and knowledge sharing in the Netherlands. *Intelligent Buildings International*, *11*(2), 105–125. https://doi.org/10.1080/17508975.2019.1574705

36. *Neighbor: The cheaper, closer & safer storage marketplace*. neighbor.com. (n.d.). https://www.neighbor.com/how-it-works

37. Buyya, R., Vecchiola, C., & Selvi, S. T. (2013). Virtualization. *Mastering Cloud Computing*, 71–109. https://doi.org/10.1016/b978-0-12-411454-8.00003-6

38. Lessons. (n.d.). *The circular economy: What is a sharing platform model?*. Sustainable Stories. https://blog.veolianorthamerica.com/circular-economy-what-is-sharing-platform-model

39. Nini, J., & Nini, J. (2018, October 15). *101+ sharing economy companies helping you embrace collaborative consumption*. Eco Warrior Princess. https://ecowarriorprincess.net/2018/10/101-sharing-economy-companies-collaborative-consumption/

40. *Online classes for creatives*. Skillshare. (n.d.). https://www.skillshare.com/

41. Online courses - learn anything, on your schedule | udemy. (n.d.). https://www.udemy.com/

42. *Learn something new on Wyzant.com!*. Wyzant. (n.d.). https://www.wyzant.com/

43. Fiverr - Freelance Services Marketplace. (n.d.-a). https://www.fiverr.com/

44. Upwork. (n.d.-c). https://www.upwork.com/

45. Ratilla, M., Dey, S. K., & Chovancová, M. (2021). The sharing economy and the antecedents of resource sharing intentions: Evidence from a developing country. *Cogent Business & Management*, *8*(1). https://doi.org/10.1080/23311975.2021.1997245

46. Frenken, K. (2017). Political Economies and Environmental Futures for the sharing economy. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, *375*(2095), 20160367. https://doi.org/10.1098/rsta.2016.0367

47. Cheng, X., Mou, J., & Yan, X. (2021). Sharing economy enabled digital platforms for Development. *Information Technology for Development*, *27*(4), 635–644. https://doi.org/10.1080/02681102.2021.1971831

48. Han, W., Wang, X., Ahsen, M. E., & Wattal, S. (2022). The societal impact of sharing economy platform self-regulations—an empirical investigation. *Information Systems Research*, *33*(4), 1303–1323. https://doi.org/10.1287/isre.2021.1044

49. Skjelvik, J. M., Erlandsen, A. M., & Haavardsholm, O. (2017). Environmental impacts and potential of the sharing economy. *TemaNord*. https://doi.org/10.6027/tn2017-554

50. McCombes, S. (2023, January 30). *What is a research methodology?: Steps & Tips*. Scribbr. https://www.scribbr.com/dissertation/methodology/

51. McCombes, S. (2023b, May 31). *What is a research design: Types, guide & examples*. Scribbr. https://www.scribbr.com/methodology/research-design/

52. Jansen, D. (2023, June 12). *What is research design? 8 types + examples*. Grad Coach. https://gradcoach.com/research-design/

53. Bhat, A. (2023, June 12). *Research design: What it is, Elements & Types*. QuestionPro. https://www.questionpro.com/blog/research-design/

54. Bhandari, P. (2023, January 30). *What is qualitative research?: Methods & examples*. Scribbr. https://www.scribbr.com/methodology/qualitative-research/

55. *Qualitative research method*. Qualitative Research Method - an overview | ScienceDirect Topics. (n.d.). https://www.sciencedirect.com/topics/psychology/qualitative-research-method

56. Coworking space, offices, meeting rooms. Workland. (n.d.). https://wrkland.com/

57. Collaboration Workspace for Remote & Hybrid Teams. Switchboard. (n.d.). https://www.switchboard.app/

58. *Spatialchat - simple way to deliver engaging video meetings.* SpatialChat - Simple way to deliver engaging video meetings. (n.d.). https://www.spatial.chat/

59. Lead winning teams with a virtual sales floor. TeamflowHQ. (n.d.). https://www.teamflowhq.com/

60. Zervas, G., Proserpio, D., & Byers, J. W. (2017). The rise of the sharing economy: Estimating the impact of Airbnb on the hotel industry. *Journal of Marketing Research*, *54*(5), 687–705. https://doi.org/10.1509/jmr.15.0204

61. The sharing economy isn't about sharing at all. Harvard Business Review. (2015, January 28). https://hbr.org/2015/01/the-sharing-economy-isnt-about-sharing-at-all

62. KIM, M. J. (2019). Benefits and Concerns of the Sharing Economy: Economic Analysis and Policy Implications. KDI Journal of Economic Policy, 41(1), 15–41. https://doi.org/10.23895/KDIJEP.2019.41.1.15

63. Edelman, B. G., & Geradin, D. (2015). Efficiencies and regulatory shortcuts: How should we regulate companies like Airbnb and uber? SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2658603

64. Majima, T., Fors, P., Inutsuka, Y., & Orito, Y. (2021). Is the meaning of the "Sharing economy" shared among us? comparing the perspectives of Japanese and Swedish researchers. The Review of Socionetwork Strategies, 15(1), 87–106. https://doi.org/10.1007/s12626-021-00068-7

65. Pfotenhauer, S. M., Wood, D., Roos, D., & Newman, D. (2016a). Architecting Complex International Science, Technology and Innovation Partnerships (CISTIPs): A study of four global MIT collaborations. Technological Forecasting and Social Change, 104, 38–56. https://doi.org/10.1016/j.techfore.2015.12.006

66. The Dark Side of the sharing economy. World Economic Forum. (n.d.). https://www.weforum.org/agenda/2018/01/the-dark-side-of-the-sharing-economy/

67. Curtis, S. K., Singh, J., Mont, O., & Kessler, A. (2020). Systematic framework to assess social impacts of sharing platforms: Synthesising literature and stakeholder

perspectives to arrive at a framework and practice-oriented tool. PLOS ONE, 15(10). https://doi.org/10.1371/journal.pone.0240373

68. University, I. (2020, September 16). What are the advantages of the sharing economy?. IE Driving Innovation. https://drivinginnovation.ie.edu/what-are-the-advantages-of-the-sharing-economy/
69. Uber Marketplace service fee | uber. (n.d.-c). https://www.uber.com/us/en/marketplace/pricing/service-fee/
70. Get paid – upwork customer service & support | upwork help. (n.d.). https://support.upwork.com/hc/en-us/categories/360001181014-Get-Paid
71. Payments & withdrawals – fiverr help center. (n.d.-b). https://help.fiverr.com/hc/en-us/categories/360003782034-Payments-Withdrawals
72. Atkins, B. (2023, September 12). Demystifying ESG: Its history & current status. Forbes. https://www.forbes.com/sites/betsyatkins/2020/06/08/demystifying-esgits-history--current-status/
73. ESG (environmental, Social, & Governance). Corporate Finance Institute. (2023, October 26). https://corporatefinanceinstitute.com/resources/esg/esg-environmental-social-governance/
74. Becchetti, L., Bobbio, E., Prizia, F., & Semplici, L. (2022). Going deeper into the S OF ESG: A relational approach to the definition of social responsibility. Sustainability, 14(15), 9668. https://doi.org/10.3390/su14159668
75. Profiles in capitalism cei May 2021 | no. 6. (n.d.). https://cei.org/wp-content/uploads/2021/05/Richard-Morrison-ESG-Theory.pdf
76. Hoang, N. (2023, June 20). #003 history of ESG. LinkedIn. https://www.linkedin.com/pulse/003-history-esg-nguyen-hoang/
77. Flammer, C. (2013). Corporate Social Responsibility and shareholder reaction: The environmental awareness of investors. Academy of Management Journal, 56(3), 758–781. https://doi.org/10.5465/amj.2011.0744
78. A brief history of ESG. ESGgo. (n.d.). https://www.esggo.com/blog/a-brief-history-of-esg

79. Byrne, D. (2023, June 12). What is the history of ESG?. The Corporate Governance Institute. https://www.thecorporategovernanceinstitute.com/insights/lexicon/what-is-the-history-of-esg/

80. ESG – A brief history of its development – part 1. ESG – a brief history of its development – Part 1 – CarbonView. (n.d.). https://carbon-view.com/esg-a-brief-history-of-its-development-part-1/

81. Admin. (2023, April 6). Wages not paid? protests against delivery service wolt. Breaking Latest News. https://www.breakinglatest.news/business/wages-not-paid-protests-against-delivery-service-wolt/

82. January 2023 - Finland - Wolt drivers protest against changing contract terms. WageIndicator Foundation. (n.d.). https://wageindicator.org/labour-laws/platformeconomy/platform-workers-news/january-2023-finland-wolt-drivers-protest-against-changing-contract-terms

INTERVIEWS

83. Anonymous Restaurant General Manager, (2023, October 14). Personal communication, First Food Company, Turku

84. Anonymous CEO, (2023, October 17). Personal communication, Indian Cuisine, Helsinki

APPENDIX

Interview Questions

Company Name: Designation: Date:

1. Q: What is the average percentage of sales generated from online platforms monthly?

   A:
2. Q: What is the fee charged by online platform service providers?

   A:
3. Q: Do the fees differ from one company to another?

   A:
4. Q: What are the impacts if you do not use the online platforms?

   A:
5. Has there been a noticeable difference in sales and profitability between the time before and after the adoption of online platforms?

   A: