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Research Paper

Data Capitalism: The Ultimate Tsukuyomi

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Abstract
So the word Tsukuyomi comes in reference to a very famous anime named Naruto Shippuden, the show consists of various characters which are Ninjas and they all have amazing powers which they use in their lives, the Tsukuyomi however is said to be one of the greatest powers of all for the Tsukuyomi allows the character to cast a powerful illusion on others and trap them in a world where he controls everything. As much as that sounds fictional but it is actually deeply connected to reality, especially now more than ever. Data capitalism is a term used to describe the economic system that has emerged as a result of the increasing amount of data that is being collected, analyzed, and monetized by companies. This research paper explores the impact of data capitalism on society, with a particular focus on the privacy paradox, surveillance capitalism, and the Internet of Things (IoT) which are different aspects of Data Capitalism present.
Keywords : Data Capitalism, Privacy Paradox, Internet of Things, Surveillance capitalism, Allied Forces, Tsukuyomi

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I. Introduction

As Professor Shoshana Zuboff said, "it is no longer enough to automate information flows aboutus; the goal now is to automate us." As vague as the statement seems to be, it is linked more deeply to us than we might ever know, and the only problem which has been carried on for decades is that we know how deeply it affects us but are still able to do nothing or are maybe willing to do nothing. Imagine a society where your every breath is tracked and used to make a profit and each step both physical as well as virtual is evaluated by known organizations which use those steps to gain more insights to your life and then sell that information to other organizations which target you to sell their products and services. In today's world, that is not fiction but more real than it has ever been and companies whose products and services we may use daily may be the one to use our data and sell it to other companies as a part of **Data**

capitalism. In the era of data capitalism, businesses are increasingly relying on data as a valuable resource to drive innovation, gain insights, and create new revenue streams. However, this data is often personal and sensitive, raising concerns about privacy violations and potential harms to individuals. The tension between privacy and value in data-driven business models has created a privacy paradox, where individuals may value their privacy, yet willingly trade it off for the benefits of personalized services and experiences.

The paper will deeply focus on both Data Capitalism as well as Privacy Paradox, it will also focus on different aspects of data capitalism through which companies are able to amass large sums of data in real time and capitalize upon them at the sacrifice of consumer's privacy and data and finally we discuss how we can change this model of capitalism into something which is necessary to be ethical and morally right. For this introduction, let us begin with a short story based on my personal experience-

So being a fan of hip hop and anime, there is something about merchandise which makes melove to wear it as it not only allows me to show my love and support for my favourite artists as well as anime shows but also gives me a feeling that the people are there with me and so as the worlds entwined I ordered a custom hoodie for myself with a print of some of my favourite hip hop artists on it. Since the company is originally established in state of Hyderabad and operates from there and also I reside in an another state far from that of Hyderabad which is actually Chhattisgarh, I ordered the hoodie online from their website which is https://printstreet.in/ , the website allows me to design custom hoodies which also piques my interest in fashion as well as graphic designing though I am not particularly good at it.

After a while of finally ordering the hoodie, the great long wait began as I waited for the hoodie to arrive at my home while consecutively tracking it along the way and hoping that it reached on time, while the days I waited something peculiar happened and I saw ads about the same website on my YouTube page and not

only there but also on my Facebook feed as well as Instagram feedand even as ads on google, well if we think the only people who knew about this order were maybe the people of the company from which I ordered as well as myself and no other person including my family even knew about it as I had kept it a secret and rather as a gift and I also had not went outside and told anyone else about it, well then how did YouTube as well as Facebook, Instagram and Google had known about it or was it just a mere coincidence that I was shown an ad on their platforms as a part of their rather secretive revenue model at the same time I placed the order and was then actually continued to be shown the ads for a long time.

Well, this is a vivid example of Data capitalism happening in the most subtle way we can imagine, so let us first properly understand what Data capitalism is and how it works. Data capitalism is a term used to describe the economic system in which data is treated as a valuable resource and is used as a means of generating profit. This system has emerged because of the widespread use of technology and the internet. In this system, companies collect large amounts of data about their customers and use it to create new products, services, and business models. The companies that collect and analyze data can gain a significant advantage over their competitors. They can use the data to target specific groups of consumers with personalized advertising and to create more efficient marketing campaigns. This can lead to increased profits and growth for the companies that are able to successfully leverage their data.

The study will further highlight what is data capitalism and dive deeply into the world of how it works and what are the different aspects which make up this secretive as well as manipulating world of data capitalism which today rules the world not only in the way of profitability, but it has truly changed the way the world works. The words secretive and manipulating do pose a negative image of this revenue model but that is because of the core principles which it works on which involves wrong and unethical practices and if this goes unopposed then it would cause a massive problem to the society as it is doing now. Some of the aspects which we would be discussing are the Internet of Things which is a core element used in Data capitalism to essentially collect large amounts of data or otherwise famously known as Big Data and then analyzed to make user profiles of consumers which is then used to send targeted advertising and many more. The study will also highlight the revenue model which essentially works with the help of Data Capitalism and the Internet of Things and poses a massive threat to our society which is known as Surveillance Capitalism, the term was originally coined by Shoshana Zuboff in her 2019 book "The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power." According to Zuboff, surveillance capitalism refers to a new form of capitalism that has emerged in the digital age, characterized by the extraction of personal data from individuals and the use of that data to fuel predictive algorithms that are used to influence and control human behavior.

This research aims to find the effects of Data Capitalism on society as a whole and how it would continue to shape the future as well as find the reasons behind our inaction against such practicesand evaluate if it is Privacy Paradox working in effect as well as do an in depth analysis of the concept of Privacy paradox. Finally we will try to find out if we can build a model of Data Capitalism which is necessary to work in an ethical and morally right way while also keeping in mind the profitability of the organizations. For this study we will use a systematic review approach to synthesize the existing research on Data Capitalism and Privacy Paradox as well as other topics included in the research like Surveillance capitalism, Internet of things, Big data andmany more. The goal is to identify and analyze the major themes, patterns, and findings in the literature, and provide an overview of the current state of knowledge in the field, the search strategy would include using Google Scholar as the primary database to search for relevant research papers. There are many things which make up the complex process of Data Capitalism and so we would try to cover all aspects of the topic and ensure that we give a bilateral view of the same in order to provide a full view of the same and try to ensure that no sides are left unturned and we can understand both sides of the Data Capitalism

Data Capitalism - Meaning and History

Before we explore different aspects of Data capitalism, let us first properly understand what Data Capitalism means and what it actually is and how it works and see where it all started, for understanding the definition we shall do it the same way through which every definition starts which is through understanding the basic meaning of the two words which make up one of the most profitable revenue models today which is Data Capitalism.

So the word "Data" originated from the Latin word "datum," which means "something given" or "information given." The singular form of "data" is "datum," but the use of "data" as a collective noun for a set of information has become more common in modern times. The term was originally used in mathematics and science to refer to a set of values or observations that could be analyzed and used to draw conclusions or make predictions. With the rise of technology and the increasing use of computers to store and analyze information, the term "data" has become ubiquitous in everyday language and is used to refer to any digital information that can be stored and processed.

Whereas the word "capitalism" is derived from the Latin word "capitalis," which means "of the head," "of the

chief," or "principal." In medieval Europe, "capital" referred to a sum of money or property that was used to start a business or to invest in a project. The term "capitalism" was first used in the mid-19th century by French economist and socialist Louis Blanc. Blanc used the term to describe the economic system in which capitalists owned and controlled the means of production, and workers sold their labor to capitalists in exchange for wages.

The word "capitalism" gained wider usage in the late 19th century and early 20th century, as economists and political theorists began to analyze and critique the emerging economic system. Today, the term "capitalism" is used to describe a variety of economic systems that emphasize private ownership and control of the means of production, as well as the pursuit of profit and economic growth. (Oxford University Press. n.d.).
So the two words when joined together finally make up the topic of our dear research which is Data Capitalism, the term "Data Capitalism" is a relatively new concept that has emerged in the last decade or so. It refers to a type of capitalism in which data is the most valuable resource, and companies use advanced technologies and algorithms to extract, analyze, and monetize vast amounts of personal data generated by individuals.

The term "Data Capitalism" appears to have originated in the academic and tech community, particularly in discussions about the power and influence of companies like Google, Facebook, and Amazon, which have become major players in the data-driven economy. Some scholars and analysts argue that these companies have accumulated vast amounts of personal data and have used it to gain unprecedented levels of control and influence over people's lives, raising concerns about privacy, democracy, and social justice. While the exact origin of the term "Data Capitalism" is unclear, it is likely that it emerged as a way to describe the new economic and social dynamics created by the rapid growth of the digital economy and the increasing importance of data in contemporary society.

It is a concept that refers to the economic system in which companies accumulate vast amounts of user data and use it to drive their business models, often without the explicit consent of users. In this system, data is viewed as a form of capital, which can be bought, sold, and traded like any other commodity. Under data capitalism, companies use algorithms and artificial intelligence to analyze the data they collect, enabling them to create highly targeted marketing campaigns and personalized experiences for users. However, this also raises concerns around privacy, surveillance, and the potential misuse of user data. Critics of data capitalism argue that it exacerbates social and economic inequality, as companies with access to more data and resources have a competitive advantage over smaller businesses. They also argue that it undermines democracy by enabling companies to manipulate public opinion and shape political outcomes. Overall, data capitalism is a complex and contested concept, reflecting the tension between the potential benefits of data-driven innovation and the need to protect privacy and democratic values.

So in simple language, Data capitalism is like a game where companies collect information about people (like their age, where they live, and what they like to do) and use it to make money. They do this by using computers and special programs to find patterns and make predictions about what people might want to buy or do next. It's kind of like guessing what your favorite food is based on what you ate before and then sending mysterious as well as subtle advertisements in all food shops around you, until you finally eat the food they want you to . Companies make a lot of money doing this, but some people worry that it's not fair because they don't always ask people if it's okay to use their information, and sometimes they use it in ways that people don't like.

Now that we have understood what Data Capitalism is, let us understand where it all started.

History of Data Capitalism

Despite the fact that Data Capitalism is a new word and its meaning originally comes only after the origin of the Internet as it is the service which allows the collection of data in large amounts for organizations through the concept of Internet of Things but it all may have started a long time before. The process of mass collection of data in order to determine human behavior has historically been prevalent and actually dates back to the 17th century when the use of “political arithmetic” in England applied numbers to social problems to seek a better understanding of everyday life. During this time, the Dutch East India Company used censuses to translate the cultural practices of their colonial subjects in Southeast Asia into quantifiable categories that Western colonizers could use for social control. In the 19th century, commercial credit reporting agencies started developing surveillance networks to monitor the credit of American businesses, which eventually evolved into sophisticated systems of tracking individuals for the provision of consumer credit. Early collection of personal data had both political and monetary value, but the limitations of technology hindered the scope of collection practices. The systematization of data was a laborious process, leading to the use of filing systems, punch cards,

and networks of information exchange among credit managers for quantifying data about people for commercial purposes. The advent of database computing significantly increased corporations' ability tocollect and store data about individuals, leading to the "scientization" of the public. Surveys and polls in the 1950s and 1960s aimed to understand the post-war "mass society" as a consumer public. By the 1980s, data collection about consumers became largely automatic through recording credit card purchases and phone calls (West, S. M. 2019). Data collection became an essential function of direct marketing and part of Data Capitalism,but then in the 1960s, something had already happened which would change the world forever.

The U.S. Department of Defense developed a system of interconnected computer networks called ARPANET (Advanced Research Projects Agency Network). The aim was to create a decentralized communication system that would be resilient to nuclear attacks. The first message was sent on ARPANET in 1969, between two computers located at the University of California, Los Angeles and the Stanford Research Institute. In the 1970s, other networks began to emerge, including the National Physical Laboratory Network (NPL) in the UK and the CYCLADES network in France. These networks laid the foundation for what would become the internet, but they were not yet interconnected. In the 1980s, the internet began to expand beyond academia and government research institutions, and the first commercial internet service providers (ISPs) were established. In 1983, the Domain Name System (DNS) was created, which allowed for the use of domain names instead of numeric IP addresses. The introduction of the World Wide Web in the 1990s revolutionized the internet, making it accessible to a wider audience. The web was created by British computer scientist Tim Berners-Lee, who developed a system of interlinked hypertext documents that could be accessed through the internet. This allowed for the creation ofwebsites, online communication, and e-commerce. (Leiner, Cerf, et al. (2009))

Since then, the internet has continued to evolve and grow, with the introduction of new technologies and services such as social media, mobile internet, and cloud computing. It has become an integral part of modern life, transforming the way we work, communicate, and consume media.

However, the internet has also given rise to new challenges and risks, including concerns over privacy and security, the spread of misinformation and hate speech, and the growing influence oftechnology companies on society. As the internet continues to evolve and become more ubiquitous, it will be important for individuals, organizations, and governments to navigate these challenges and ensure that the benefits of the internet are accessible to all.

With the emergence of Internet commerce, there came a significant shift in the scope and scale oftracking that transformed the practices of data collection. At first, online commerce was mainly focused on the sale of goods through the internet, anticipating the growth of the number of internet users. However, early dotcom businesses did not see profitability in their operations, and their business models heavily relied on venture capital investment to stay afloat. The dot-com bubble burst in the early 2000s, as many dotcom businesses failed to deliver on their promises of profitability and investor expectations. This led to a massive sell-off of technology stocks and thecollapse of many dotcom businesses. The bubble was fueled by speculation and overvaluation of internet companies, as investors poured money into businesses with unproven business models and questionable revenue streams. The burst of the bubble resulted in significant losses for investors and highlighted the risks of investing in emerging technologies without a solid understanding of the underlying business fundamentals. However, the dotcom bubble also laid the groundwork for the emergence of new internet companies with more sustainable business models, such as Google, Amazon, and eBay, which went on to become some of the most successful companies in the world which was Data Capitalism. Following the crash, there was a demand for new business models that would shift e-commerce in ways that could leverage Web 2.0's interactivity. Forrester analyst Mary Modahl proclaimed this the holy grail of Web 2.0 and said that -

"Every day, the Internet generates a mind-boggling amount of new data. Every log-on, every click, every Web site registration, and every e-mail creates a trace of data on a computer. But noone has figured out how to use this information . . . a company that develops the ability to act quickly on data that it collects from the Internet will possess a hard-to-copy advantage."(Modahl, 2000, p. 137)

The term "Web 2.0" was coined in 2004 to describe a new generation of internet applications that focused on user-generated content and social networking. This shift towards interactivity enabledbusinesses to engage with customers in new and different ways and leverage their collective knowledge and creativity. The emergence of Web 2.0 also enabled new forms of online advertising, such as targeted ads based on user behavior and preferences, which proved to be more effective than traditional forms of advertising. The new business

models that emerged inthe wake of the dot-com bubble burst paved the way for the growth of e-commerce and the digital economy as we know it today and formed the Data Capitalism model which we know today.

So now that we have understood where it all began, let us understand how it works and what are the different aspects of Data Capitalism.

II. Literature review

Society is changing, much differently than we ever wanted it to and as well as much rapidly thanever before. While there has always been a fear of technology taking over the world it was never imagined that it would take over in such a way, especially where we don't even realize that we are being manipulated by the things which are closest to us and it may be our mobile phones, laptops, smartwatch and many more. Data Capitalism is a new economic system where data isthe primary commodity that drives profit and power, this new economic system has led to a shift in the ways that surveillance and privacy operate, with significant implications for individuals and society (Taylor, L. 2019). Data capitalism is essentially transforming the logics of surveillance and privacy and it is doing so in mainly three ways: by eroding the boundary between public and private, by creating new forms of power and control, and by changing the relationship between individuals and their data (West, S. M. 2019). So the model with which Data Capitalism works is beautifully explained by Prof, Shoshana Zuboff as she tells us to think of it as a dream world for businesses where every advertisement which they put is guaranteed to be successful and reaches the target audience, increases the sales, helps in reaching the organizational objective and many more so in its essence the Data Capitalism sells 'Certainty' and in order to have Certainty we need a lot of **data** which helps us in creating a predictive model which does what we want it to do (Zuboff, S. 2019). In the paper "Data Selves:More-than-Human Perspectives," Deborah Lupton provides a critical examination of the relationship between humans and data. She argues that humans are no longer simply passive data subjects, but rather active agents in the creation and management of data selves, which are representations of ourselves made possible through data collection, analysis, and dissemination. Through this lens, Lupton engages with various concepts such as datafication, data sensemaking, data sharing, and data practices, highlighting the potential benefits and harms of these practices for individuals and societies (Lupton, D. 2019). Since certainty requires data and our every step both physical and virtual leaves a data footprint and organizations have more than enough data,in fact there is such a humongous amount of data present that there is a new term for it which is 'Big Data'. It refers to extremely large and complex sets of data that are beyond the capabilities of traditional data processing software and hardware to manage and analyze. The increasing abundance of data is transforming the economic landscape and disrupting traditional models of capitalism and while capitalism has been enormously successful in driving economic growth, it has also led to growing inequality and environmental degradation. Gradually data became the most valuable resource in the modern economy, and companies that were able to harness and analyze this data gained a significant competitive advantage such as Google and Facebook, which have created vast networks of data that allowed them to dominate their respective industries (Mayer-Schönberger, V., & Ramge, T. 2018). Then this vast volume of data is analyzed to create a predictive model using algorithms which have become deeply embedded in various aspects of social and cultural life, and are increasingly shaping our understanding of the world around us (Seaver, N. 2018)(Pasquale, F. (2018) (Cheney-Lippold, J. 2018). But unfortunately algorithms and models which are used to analyze large data sets often reinforce existing inequalities and power structures, and threaten the democratic process. Various mathematical models are used in various contexts, such as policing, education, and finance, and these models can be biased and unfair, particularly against marginalized groups and also algorithms which are often used in political campaigns can be manipulated to influence voters and undermine democratic processes (O'Neil, C. 2016). Much like what happened in 2016, in the US elections where an organization namely Cambridge Analytica gained international attention in 2018 following allegations that it had harvested the personal data of millions of Facebook users without their consent. This data was allegedly used to influence the outcomes of the 2016 US presidential election and the Brexit referendum in the United Kingdom. There is a common misconception that Data capitalism is not as harmful as it seems to be and when we think likethat then what is wrong with targeted advertising or targeted content, it not only helps us to get better and personalized services but how harmful could some targeted videos or photos or any kind of media actually be to us. While these technologies have the potential to enhance personalization and improve user experiences, they also pose significant risks to privacy, autonomy, and individual agency and that these technologies essentially rely on the collection and analysis of personal data, often without the explicit consent of individuals, and that they are increasingly being used to make decisions about individuals that have significant social and economic implications. An amazing research paper by author Karen Yeung discussed the five key fears associated with the use of mass predictive personalization, these include fears about theaccuracy and reliability of predictive algorithms, concerns about the impact on individual autonomy and agency, worries about the potential for discrimination and bias, anxieties about the loss of privacy, and fears about the power

dynamics between individuals and the companies that control personal data (Yeung, K. 2018). With more and more data being collected, the predictability increases but there is one side of Data Capitalism that shows the other side of the concept. While people are concerned about their privacy, when given the opportunity to either protect their privacy and pay for the services which they now use for free or sacrifice their privacy for using free services, they will choose the latter. This concept is known as the Privacy paradox which refers to the disconnect between individuals' attitudes towards privacy and their actual privacy-related behaviors and while many individuals express concern about privacy, they may engage in behaviors that compromise their privacy, such as sharing personal information online or using weak passwords. There are several factors that contribute to the privacy paradox, including cognitive biases, social norms, and situational factors; in fact privacy paradoxes can vary depending on the type of personal information being shared, as well as the context in which it is shared (Kokolakis, Spyros. 2015). This paradox is usually seen in the use of Social networking sites such as Instagram, Facebook, Snapchat, Twitter and many more where organizations often use our data in exchange for giving us free services. Apart from manipulating human behavior through targeted content, social media has changed the landscape of protest movements and activism around the world and social media platforms such as Twitter have enabled new forms of networked protest, they have also created new challenges and vulnerabilities and while creating new opportunities for engagement and mobilization it has also encouraged a culture of "clicktivism" that can be superficial and ineffective (Tufekci, Z. 2018).

Now a lot of research has been done and almost every research calls for action from the government by bringing strict regulations and having careful oversight over organizations and different governments have taken different approaches to it, such as the European Union with the General Data Protection Regulation (GDPR) is providing a comprehensive framework for protecting personal data, in contrast, China has taken a more authoritarian approach to privacy, with the government exercising significant control over the collection and use of personal data. (Aho, Brett & Duffield, Roberta. 2020). If we take the case of the US, in 2013 a former National Security Agency (NSA) contractor who leaked classified documents provided a detailed account of the NSA's surveillance activities both within the United States and abroad. NSA's surveillance activities represent a significant threat to individual privacy and civil liberties, and that they have been carried out with minimal oversight or accountability and the government's claims about the necessity of these programs for national security are often overstated and they have a chilling effect on freedom of expression and dissent. (Greenwald, G. 2014). Since the consequences of Data Capitalism are felt throughout the world, it is imperative that we take action together .

III. Research Methodology

➢ Research Design: In this research we have done exploratory research using secondary data to synthesize the existing research on Data Capitalism and Privacy Paradox as well as other topics included in the research like Surveillance capitalism, Internet of things, Big data and many more. The goal is to identify and analyze the major themes, patterns, and findings in the literature, and provide an overview of the current state of knowledge in the field.

➢ Search Strategy: The study will use Google Scholar and Scopus as the primary databases to search for relevant research papers. The search terms will include **"data capitalism", "privacy paradox", "digital economy", "data collection", "surveillance", "privacy concerns", "Internet of things", "privacy invasion", "Surveillance Capitalism "and related terms.** The search will be restricted to peer-reviewed academic journals and conference proceedings published between 2000 and 2022.

➢ Inclusion and Exclusion Criteria: The study will include research papers that address the research question directly or indirectly, and meet the following criteria: **(a) focus on data capitalism, privacy paradox, or related concepts;**
(b) report empirical data, theoretical insights, or critical analysis; (c) written in the English language; (d) published in a peer-reviewed academic journal or conference proceedings between 2000 and 2022. Papers that do not meet these criteria, such as opinion articles, book reviews, and editorial notes, will be excluded but may be used in other studies in the future and indirectly helped in the research.

➢ Data Extraction: After the initial search, the study will use a screening process to identify relevant papers. **The first step will be to screen titles and abstracts, and then full-text articles. The final sample will include papers that meet the inclusion criteria. The study will extract data from each paper, including author(s), year of publication, research design, data sources, key findings, and implication.**

The Internet of Things and Surveillance Capitalism : Power of Interconnectivity

One major part which complements Data capitalism is the beautiful as well as dark concept of IoT which is the Internet of Things and is of great fascination for me personally even though it sets the base upon which Data capitalism works today, its process and the way it works is actually amazing . The Internet of Things (IoT) is a network of physical devices, vehicles, home appliances, and other items embedded with electronics, software, sensors, and connectivity, that enables these devices to connect and exchange data with each other and with other systems over the internet. The IoT allows for the exchange of data and information between these devices, which can then be used to make decisions and take actions in real-time.
The IoT has the potential to revolutionize many areas of life, including healthcare, transportation, and manufacturing. In healthcare, for example, IoT devices can be used to monitor patients remotely and transmit data to healthcare professionals, improving patient outcomes and reducing costs. In transportation, IoT devices can be used to monitor and optimize traffic flow, reducing congestion and improving safety. In manufacturing, IoT devices can be used to monitor and optimize production processes, reducing waste and increasing efficiency.
However, there are also concerns about the security and privacy implications of the IoT, as the vast amounts of data generated by these devices can be vulnerable to hacking and other forms of cyber-attacks. As a result, there is a growing focus on developing secure and resilient IoT networks, and on ensuring that privacy protections are built into IoT devices and systems.
So while researching about this topic it was quite interesting to know about everything but at the same time it was also difficult to understand so let us understand the concept in simple terms as *Jacob Morgan* in his article titled - *A Simple Explanation Of 'The Internet Of Things'* explained that in simple terms, the Internet of Things (IoT) refers to the idea of connecting any device with an on/off switch to the internet or to other devices. This includes a wide range of devices, from cellphones and wearable devices to coffee makers, washing machines, and even components of larger machines such as jet engines. It's estimated that by 2020, there will be over 26 billion connected devices, creating a vast network of connections between people, devices, and even between devices themselves. In short, the IoT is all about creating a network of connected "things" that communicate with each other and with people or if we want to explain in even simple terms then the Internet of Things (IoT) is like having a magic power that lets you talk to your things! Imagine if your toys, your bed, your books, and even your clothes could talk to you and tell you what they need or want. For example, your favorite toy could tell you when it needsa new battery, or your bed could tell you when it's time to wake up. That's what the IoT is all about - making things smarter by connecting them to the internet and allowing them to communicate with each other and with people.
The origins of the Internet of Things (IoT) can be traced back to the early days of the internet and the development of the first networked devices. The idea of connecting everyday objects to the internet was first proposed in the 1980s by computer scientist Mark Weiser, who envisioned afuture where computing would be integrated seamlessly into everyday life.
However, it wasn't until the early 2000s that the term "Internet of Things" was coined by Kevin Ashton, a British technology pioneer. Ashton envisioned a world where objects could be uniquely identified and tracked using RFID (Radio-Frequency Identification) tags, allowingthem to be connected to the internet and share data with other devices. The development of wireless communication technologies, such as Bluetooth and Wi-Fi, also played a crucial role in the growth of the IoT. These technologies made it possible to connect devices to the internet without the need for physical connections, paving the way for the proliferation of smart devices that we see today.

Since then, the IoT has grown rapidly, with billions of devices now connected to the internet and exchanging data with each other. The applications of the IoT are also expanding rapidly, from smart homes and wearable devices to industrial automation and smart cities. The Internet of Things (IoT) is a vast and diverse field that involves a wide range of hardware and software tools. Let us understand how Internet things work and some of the most common tools used in IoT development and deployment include:

- ❖ Microcontrollers: Small programmable chips that can be used to control and monitor connected devices.
- ❖ Sensors and actuators: Sensors are used to collect data about the environment or the device itself, while actuators are used to control physical processes or respond to changesin the environment.
- ❖ Wireless communication protocols: Wireless technologies like Wi-Fi, Bluetooth, ZigBee, and cellular networks are used to connect IoT devices to the internet and to each other.
- ❖ Cloud platforms: Cloud platforms provide a scalable and flexible infrastructure for storing, processing,

and analyzing the large amounts of data generated by IoT devices.

❖ Data analytics and machine learning tools: These tools are used to extract insights and patterns from IoT data, enabling businesses and organizations to make informed decisions and take proactive action.

❖ Development platforms and frameworks: These tools provide a set of pre-built components and modules that can be used to quickly build and deploy IoT applications.

Overall, the IoT ecosystem is constantly evolving, with new tools and technologies emerging all the time to meet the growing demands of this fast-growing field. Even though the model seems quite complex but ***Zhipeng Tang , Anfeng Liu and ChangQin Huang in their paper titled - Social-aware Data Collection Scheme through Opportunistic Communication in Vehicular Mobile Networks*** explain it in a simple and beautiful way -

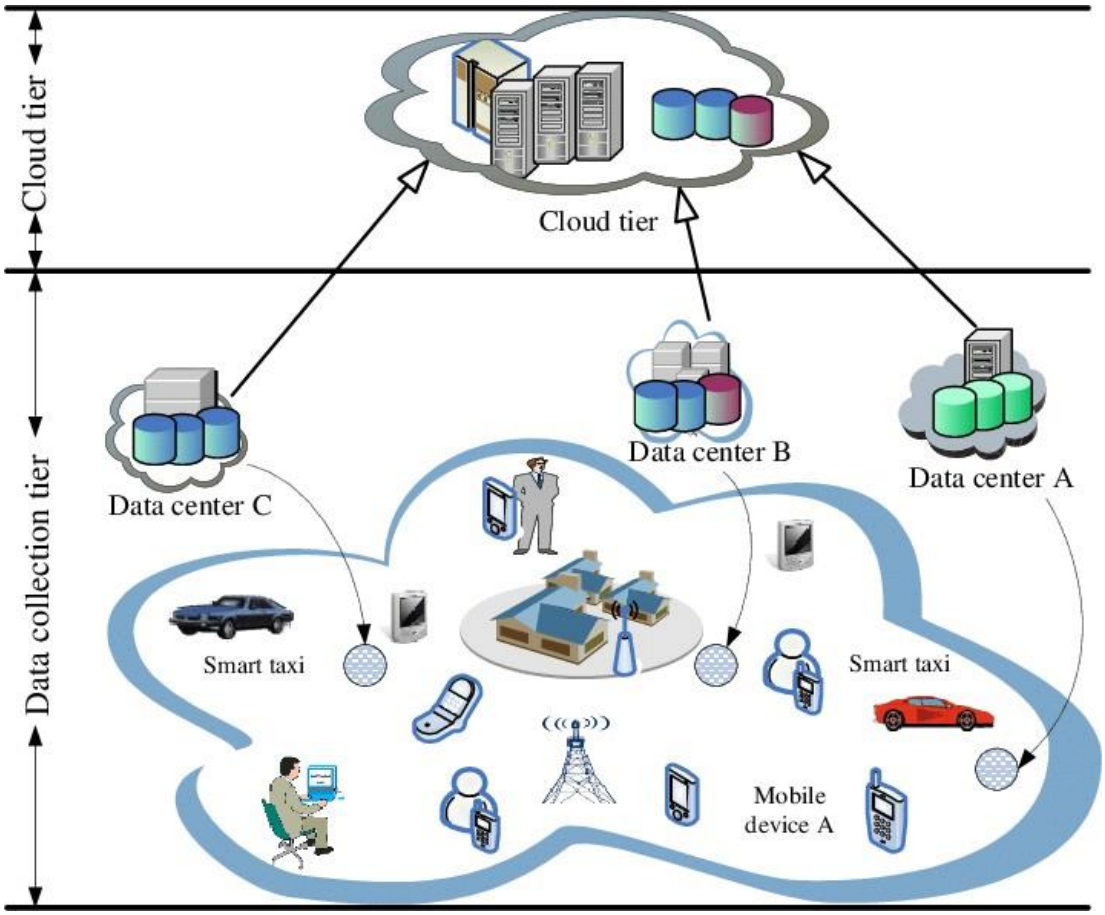

Figure 1

So here we can see in *Figure 1* how data is collected from various devices with sensors embedded in them which then send huge amounts of data or also known as Big data to data collection centers which then send the data to Cloud platforms where the data is analyzed by various data analytics and machine learning tools.

So how does the Internet of Things complement and helps in Data capitalism, so that is through the concept of ***Surveillance Capitalism.***

Surveillance capitalism is a term coined by scholar Shoshana Zuboff to describe the business model of companies that collect and monetize personal data through digital surveillance. These companies, such as Google and Facebook, gather vast amounts of data about individuals' online behavior, including their search history, social media activity, and location data, and use this information to target advertisements and other services.

Surveillance capitalism has become pervasive in modern society, with many people willingly giving up personal information in exchange for free access to online services which is what we will discuss as the two – pill problem or the concept of Privacy paradox. However, concerns have been raised about the potential risks to

privacy, autonomy, and democracy that come with this data collection and usage. Some critics argue that surveillance capitalism represents a new form of exploitation, where individuals are commodified, and their data is treated as a raw material to be extracted and sold for profit.

So how do Surveillance Capitalism and the Internet of Things work with each other, so if welook at the basics then Surveillance capitalism is a business model that involves collecting and analyzing vast amounts of data about individuals to predict and influence their behavior, in orderto generate profits.
Here's how it works:

- ❖ Data collection: Companies gather data on individuals through a variety of sources, such as online activity, social media usage, and mobile device usage.
- ❖ Data analysis: The collected data is then analyzed using advanced algorithms and machine learning techniques to extract valuable insights about individual preferences, interests, and behavior patterns.
- ❖ Behavioral prediction: Using these insights, companies can predict individual behavior and tailor products and services to better match their needs and preferences.
- ❖ Targeted advertising: Companies can also use this data to deliver targeted advertisements to individuals, based on their predicted behavior and interests.
- ❖ Profit generation: The ultimate goal of surveillance capitalism is to use this data to generate profits through increased sales and advertising revenue.

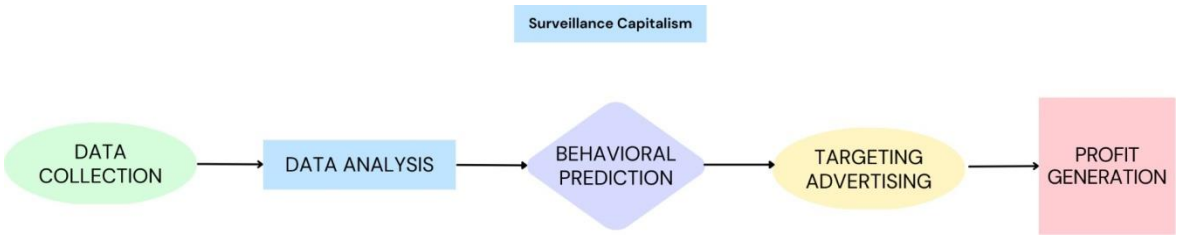

Figure 2

So the above diagram which is *Figure 2* represents the process of how surveillance capitalism works and what are the different steps involved in one of the most secretive as well as profitable models in the world today. So where does the Internet of Things come into the picture and how does it work along with Surveillance Capitalism to make up one secretive model, that is where Big Data comes into play as also discussed above. So Big Data is exactly like the name suggests and refers to extremely large and complex sets of data that are beyond the capabilities of traditional data processing software and hardware to manage and analyze. The term "big data" is often used to describe data sets that are too large or too complex for traditional data processing tools to handle. So what happens when you have more than 13.1 Billion devices generating data, you get such large data sets which are rapidly being created and now you have huge volumes of data flowing through the Internet and then that data is used in Surveillance Capitalism.

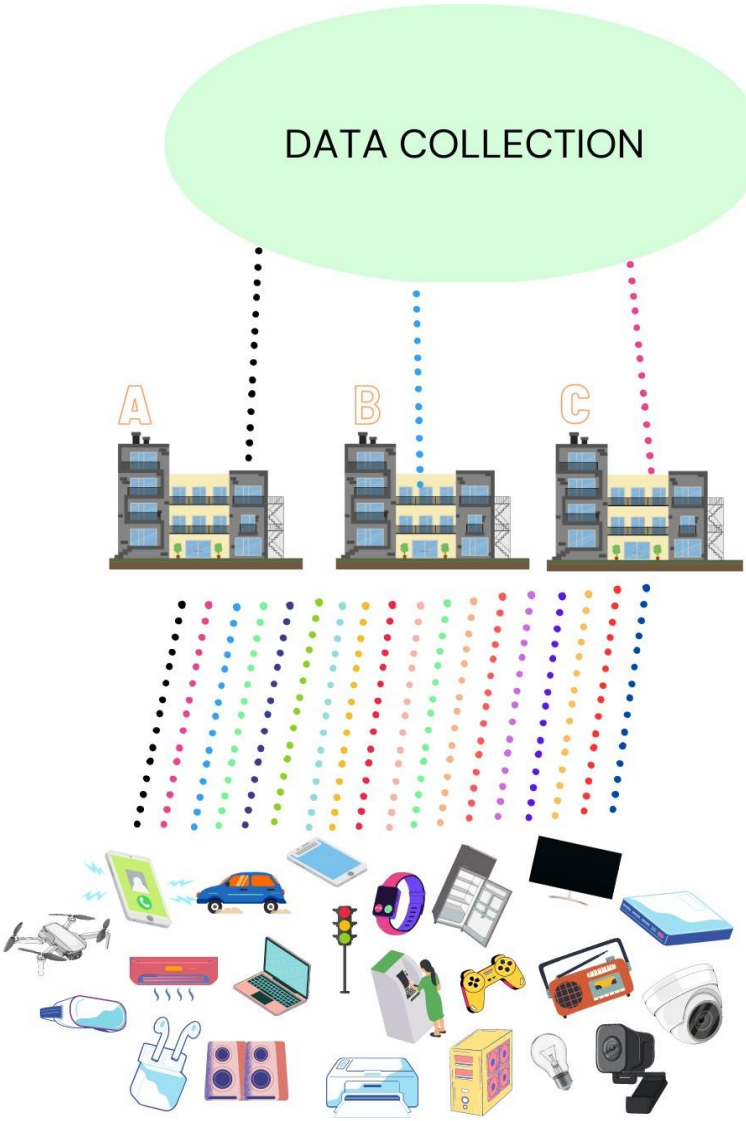

Figure 3
How the Internet of Things facilitates in the Data Collection process

The Beginning of the Tsukuyomi

RQ1. What are the effects of Data Capitalism on society?

As we can see in the above diagram that data is sent from all devices which have an on and off button to various data collection centers and that is where the problem begins, collection of private data and sending to the data collection centers without user's content is and will always be wrong, the word Surveillance Capitalism in itself is such a pressing issue especially becauseit facilitates collecting data of users in ways which we cannot even imagine and one of the key concerns about surveillance capitalism is that it involves the collection and analysis of large amounts of personal data, often without individuals' knowledge or consent. This raises serious questions about privacy and the potential for misuse of this data as once this data is collected it is sent to Data brokers, almost anyone and that really means anyone can access that data from individuals, to groups, to organizations, to political parties, to governments and many more people that we may never know about.
Let us reimagine being in a hypothetical world where your every breath is tracked and used to make a profit and each step is evaluated by organizations which use those steps to gain more insights to your life and then sell that information to other organizations which target you to sell their products and services and actually do much more. In today's world,as we have found out, that it is not fiction but more real than it has ever been. Companies whose products and services we may use daily may be the one to use our data and sell it to other companies as a part of data capitalism. This is not only confined to getting targeted ads on different platform,

but it can extend to much more as a report by famous newspaper namely the ***Chicago Tribune*** said -

"On the last day of her life, Amy Boyer could not have known a killer was waiting for her on her way home from work. But her stalker knew exactly where she would be. As the 20-year-olddental assistant slipped into her Honda Accord on a quiet road just off Main Street here one day in October 1999, the obsessed young man pulled up, shot her repeatedly and then turned the gun on himself. The murder-suicide drew nationwide attention because the gunman, a former classmate named Liam Youens, had bought her Social Security number from an Internet information broker for $45. Police said he used it as the key to find her workplace." - O'Harrow Jr. (2002, Jan 06)

This refers to news article titled - ***Online firm gave victim's data to killer*** and the case where a stalker in New Hampshire was able to find her old classmate's social security number from adata broking site for just $45, imagine if for just $45 someone's is able to get a key information about you without you ever knowing about it and this is not related just to the social security number but so much more as another news article by ***ABC news*** titled - ***Domestic violence victim speaks out against online data brokers*** said in the report that -

"If you have someone who's tried to kill you for them to be able to just type in your name, and any known address that you've stayed at can pop up. It's scary, because now they know ways to start trying to find you." Source - Pia (2017, Oct 28)

This statement was given by Jane (original name is not used here for safety of privacy) who is a victim of domestic violence when she found out that her address came up in a search at a data broking site and we can imagine the horror she might have felt and must still be feeling and/or any victim of domestic violence would feel or any people who might have not been gone through such traumas but our location being so widely accessible without our consent is wrong. There are many more cases of implications which Data Capitalism could have on our society which may amount to much more than targeted advertisements and have drastic effects on our society. Now that we know that companies send us targeted information, let us understand what implications would that have on our society, as per Psychologist B.F Skinner who discovered the concept of conscious control, he said that the best way to free people from controllers who use punitive methods to control people is to give people a sense of freedom and feel that power comes from them, but what we do not realize that when we we are being controlled even when we do things we want to do and when we feel free and then we are stuck because we have no preparation for controls that people will exert when they make us do what we actually want to do and when we do things we please them and do what they have been working for and so we are vulnerable to such things and the literature and concept of freedom never takes into account the dangers of control from volition which is the power to choose something freely or to make your own decisions and not thorough punishment.
So here we see the impact of Data Capitalism on our society which is deeply rooted to behavioral psychology of human beings as just like psychologist B.F Skinner said that the best way to control someone is to give them a sense of control and make them think that they have freedom and so that is what organizations do as they gradually shape and control our behavior. So, we get this feeling that we are making a decision with our own freedoms when it is actually by the influence of organizations gradually influencing our behavior and thoughts as well as our opinions. So let us see how exactly it affects our minds, so organizations can manipulate either by using an existing problem and solution or creating a new problem and providing a solution to that but we have to understand that affecting someone's behaviour and opinions is a multilevel and multilateral process which means there are more than one way it affects our brains and there a lot of people involved in it. So, today we use the word as Neuromarketing is a field that combines neuroscience, psychology, and marketing to understand how the brain responds to marketing stimuli. It uses various techniques, including functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and eye-tracking, to measure brain activity, physiological responses, and behavioral responses to marketing stimuli such as advertisements, products, and packaging.

The goal of neuromarketing is to uncover the underlying psychological and emotional drivers of consumer behavior and decision-making. By understanding how consumers process and respond to marketing messages, marketers can optimize their marketing strategies and design more effective campaigns. Let us see how marketers use one practice known as repetitive marketing which is as it sounds is showing a particular advertisement about a particular product or service again and again, this could be done through both using central or peripheral way which basically means either by showing an ad on television that we are watching or either showing us the advertisement in a subconscious way and either way seeing a particular advertisement again and again would help in getting the image of the product or service stuck in our brains.

Now the words which we used earlier, which were Central and Peripheral are both two forms of persuading the consumers, now Central persuasion is usually used when there the consumer already has certain knowledge about the product or service and knows what kind of product or service they want to have and it refers to a more a direct method of persuasion whereas in Peripheral persuasion the consumer might not have knowledge about the brand, product ro service and may not be even interested in it and that is why organizations use different tactics as to catch the attention of consumers, for example - When we see an influencer in an advertisement and we are immediately drawn to the advertisement and we may not be actually looking at the advertisement and paying attention to the brand, product or service being advertised but since the influencer is there in the advertisement so we keep watching the ad. Organizations also may use catchy slogans, catchy music, attractive colors and many more to persuade the consumers and try to persuade them about the product, service or brand advertised subconsciously.

One more method which advertisers use is Pavlov's classical conditioning theory, Pavlov'sconditioning theory is a psychological concept that suggests that behaviors can be conditioned orlearned through the association of stimuli and responses. In the context of data capitalism, this theory can be applied to the ways in which companies collect and use data to influence consumerbehavior.
Data capitalism is a system in which companies collect, analyze, and use large amounts of data to make decisions and drive profits. This data can be used to create personalized advertisements, recommend products or services, and influence consumer behavior in a variety of ways. Pavlov's conditioning theory can be applied to data capitalism by understanding how companies use data to create associations between stimuli and responses. For example, a company might use data to track a consumer's online behavior and create personalized advertisements that are specifically tailored to their interests. Over time, the consumer may begin to associate certain stimuli (such asa particular brand or product) with a specific response (such as making a purchase).

Additionally, data can be used to reinforce these associations over time. For example, a company might offer rewards or incentives for making a purchase, which reinforces the association between the stimuli (the advertisement) and the response (the purchase). This can create a feedback loop in which the consumer continues to make purchases based on the associations thathave been established through data-driven marketing techniques. Overall, Pavlov's conditioning theory can be applied to data capitalism by understanding how companies use data to create and reinforce associations between stimuli and responses in order to influence consumer behavior and drive profits.

Let us understand this manipulation of behavior through another example which is based on a story of my true own experiences.
So as you already know that I ordered a hoodie earlier from a website after which I was continued to be shown ads for a very long time, well I still like hoodies and continue to watch them especially when I get targeted advertisements as I cannot avoid them but the companies which send these advertisements do make nice designs and it is often that I find myself a websitewhich makes custom hoodies. It is not necessary that I buy the hoodies at once but once I leave their website I am shown the same company's advertisement with that particular product which Ilike on a repetitive basis and each time I am shown the advertisement my willingfulness to buy the hoodie increases and gradually after seeing the same targeted advertisement about the same particular product I finally buy the hoodie and get entrapped in the model of Data capitalism which I have been a part for so long.

One crucial part of Data capitalism which we personally feel is unfortunately and sadly often overlooked is consent, consent is something that understanding it is a cruciality for everyone. Consent in its true meaning would be the act of giving permission or agreement to something. In legal terms, it is the voluntary agreement or assent given by an individual or a group ofindividuals to engage in a particular activity or to allow their personal information to be used for a specific purpose. Consent is an important concept in many areas of life, including healthcare, research, and relationships. In healthcare, patients are required to give their consent before undergoing a medical procedure or treatment. In research, participants must give their informed consent before taking part in a study. In relationships, consent is a crucial component of sexual activity, where both parties must agree to engage in sexual acts.
And so, Consent is also an important part of data privacy and security, as it ensures thatindividuals have control over how their personal information is used and shared. For example, companies must obtain consent from individuals before collecting, processing, or sharing their personal data. This helps to protect the privacy and security of individuals' personal information and helps them in implementing their human rights.

In fact, consent is what the discussion is all about, the consent to track and use people's data is what draws a

line between right and wrong. But the concept of right and wrong is subjective and what is right and wrong is different for everyone and what our views will naturally differ from each other due to our personalities, thoughts, opinions and many more being different from each other, for everyone is unique in their own way. One amazing example which is both vivid as wellas quite mundane in our daily lives is the Privacy Paradox.

Before we dive into the privacy paradox, let us understand the various aspects upon which the concept of Data capitalism is justified. One of the major points as put by companies as well as individual, groups and organizations which believe that Data capitalism is not wrong is the fact that it allows organizations to not only allow to provide a better as well as personalized experience to its customer but also saves their time as it directly points them to things which theyneed and it is more effective as well as efficient for both the consumers as well as the organizations just like we discussed earlier in the story that even though the advertisements showed were a way to manipulate human behavior but the designs shown were actually beautiful and I enjoyed watching them.

Proponents of data capitalism also often argue that it is a natural evolution of capitalism, driven by technological advancements and the increasing importance of data in modern business practices. They may argue that the use of data allows companies to better understand consumer preferences and tailor their products and services to meet these preferences, leading to increased efficiency and productivity. Proponents may also argue that the use of data can lead to the creation of new industries and the generation of new jobs. While data capitalism can lead to the creation of new job opportunities in certain industries, it is difficult to estimate the exact number of jobs created due to this phenomenon. The use of data in business can create new job opportunities in areas such as data analysis, data engineering, machine learning, and artificial intelligence. However, it can also lead to the automation or elimination of certain jobs, particularly those that involve routine tasks or data processing. Moreover, the impact of data capitalism on job creation may vary across industries and regions, and may depend on factors such as the level of technology adoption, the availability of skilled workers, and government policies. Overall, while data capitalism can lead to the creation of new job opportunities, it is important to also consider its potential impact on job displacement and the need for upskilling or reskilling of the workforce to adapt to changing job requirements.

Privacy Paradox: The two-pill problem

RQ2. Why are we not acting against such practices and is it due to the Privacy Paradox inaction?

So, this reference is related to one of the greatest movies renowned for its outstanding as well as beautiful graphics and story named The Matrix. So, one of the famous movie scenes include where the protagonist named Neo is offered with pills which represent two decisions, and he must decide which one to go with and it would change his life forever as If Neo takes the blue pill, he will continue to live his life as a computer programmer and never know the truth about the Matrix - a simulated reality created by sentient machines to control humanity. However, if hetakes the red pill, he will be shown the truth and be given the opportunity to join the resistance against the machines and fight for humanity's freedom and so we have a very similar situation going here and it goes as follows –

I like using Instagram on a daily basis and in fact it is one of the first apps which I open in the morning is Instagram and it helps me to stay updated with the whereabouts of my friends and family and also gives me a sort of dopamine hit which makes me spend more time on the platform and as the posts and reels keep going it feels like we are entrapped in an endless loop ofdata entering through the mind and spending less time on each post or reel and only spending time on post or reels which is able to keep my attention for more period of time. I also like using Instagram because it is free and lets me do all the things mentioned above and so much more without having to pay any amount of money and being totally free of cost, or is it?

Instagram is a social media platform that is owned by Facebook, and like many other social media platforms, it operates under the principles of data capitalism. Data capitalism is a term used to describe the economic system that is built around the collection, analysis, and monetization of data.

On Instagram, users generate a vast amount of data through their interactions on the platform, such as likes, comments, shares, and messages. This data is then collected, analyzed, and used to create user profiles, which are sold to advertisers. Advertisers can use these profiles to target users with personalized ads based on their interests, behaviors, and demographics. This business model is highly profitable for Instagram and Facebook, as it allows them to make money by selling access to their users' attention to advertisers. However, it also raises concerns about privacy and the commodification of personal data. Users may not always be aware of the extent to which their data is being collected and used, and they may not have full control over how their data is being shared or monetized.

In recent years, Instagram has faced criticism for its role in perpetuating the data capitalism model and for its handling of user data. To address these concerns, the platform has introduced new privacy features and data

control options, such as the ability to limit data sharing with third-party apps and to control what data is shared with advertisers. However, the tension between profit and privacy is an ongoing challenge for social media platforms like Instagram, and the debate over the role of data capitalism in our economy is likely to continue for sometime.
So here we are presented with two pills which are Red and Blue, if we choose the red pill then it would mean that we have to pay for Instagram's services and in turn our data will not be shared and our privacy would also be safe and if we take the blue pill then we continue to use Instagram's services for free in exchange of them invading our privacy and sharing our data with companies. It feels like a struggle between two concepts which are Privacy protection and Convenience, now which would you choose is again as discussed above would be different for everyone.

This paradox here beautifully explains the other side of Data Capitalism which is the society, while we are a society which is focused on being conscious about our surroundings as well as our rights and many more things but when it comes to protecting our privacy against the use of free service we are quite hesitant and that what makes us equally responsible for Data Capitalism happening in our society. The fact that we are so concerned about our privacy of our data but at the same time so willing to sacrifice our data at Social networking sites is what makes this concept particularly paradoxical in nature. So let us now understand what might be the different reasons behind this simple yet complex paradox -

❖ **Instant gratification** - So the word instant gratification basically refers to instant satisfaction and convenience, as time passes by we as a society are getting used to more and more Instant gratification especially with the rise of Social networking sites. One example could be Instagram which has recently introduced a feature known as 'Instagram Reels' which basically allows users to upload short videos. The whole concept of the feature is based on instant gratification and it is one of the major reasons why our attention span is decreasing as a society. While we browse through reels, we only stop and watch those reels which are able to grab our attention and which is why users use famous and catchy audio and visual media to attract other users in an instant and as we keep swiping through short videos, we keep getting short periods of instant gratification which keeps us hooked to the app. Even Meta (parent company of Instagram) CEO Mark Zuckerberg admitted that 'Reels' are the primary engagement growth driver of Instagram, and so it is quite possible that we as a society are willing to sacrifice our privacy of data which is something about which we are so concerned about for instant gratification.

❖ **Social pressure** - With almost 4.76 Billion people using social media today, a number which is projected to be grow up to 6 Billion people by 2027, it is possible that many people are sacrificing their privacy to access Social networking sites in social pressure which basically refers to when we do something in order to become a part of the society, it gives us a feeling of acceptance and makes us feel as we are a part of the group as well as following the norm. Since almost all Social media today works on the model of Data Capitalism sp people are forced to give up or sacrifice their data in order to become a part of the society. For example - If all my friends are using Instagram and they interact there everyday after school, then it could make me feel left out and I as an individual would like to be a part of the group and to feel included in something which would make me also use Instagram.

❖ **Lack of awareness** - So one major reason for this Privacy Paradox as well as our inaction towards the unethical practices is lack of awareness as a lot of people are not aware that their data is being used without their consent. This lack of awareness is because of both, the lack of transparency from the side of companies and organizations involved in Data Capitalism as well as us as a society for not having adequate knowledge about the concept.

❖ **Trust in technology** - While we use a particular app or website regularly, there is a type of trust and bond which forms as brands themselves try to create a relationship with their customers in order to increase Customer Lifetime Value as well as Customer Retention Rate and to fulfill many more objective and so customers could trust that a particular website or app would take proper care of their data which entrust with it which is why despite because so conscious about their data, due to their trust they are willing to give their data.

❖ **Lack of control** - So lack of control refers to a state of helplessness where we are aware that our data is being by used and shared by organizations without our consent and then we feel helpless and feel that since so much of our data is already being shared and used without our consent and so even if more data is took, then it would not make much difference.

❖ **Incentives** - So this is a practice used by many organizations where incentives are offered to people in exchange for their data, for example - A website may offer some special features to us only when we enter our email address or even offer us some kind of discounts if we sign up to their website or app.

Let us summarize this concept with another story based on my own experience -
I wanted to remove the background of a picture which i took and since I do not possess those specific editing skills I visit my favorite place which always there and helps me which is the internet and so I type - ‘ remove background from picture ‘ and about 3,95,00,00,000 results come from which I click the one that I feel like (not really when there is Google Ads in place), then the website helps me to remove the background from the picture but when I go to extract the picture it says that I have to either sign up by entering my email address or pay a sum of amount, then I go on to enter my details and potentially give all my data to the organization.

Data Capitalism: The Allied Forces Model
RQ3. Can we build a model of Data Capitalism which works such that it is ethical and morally right?
As the impact of surveillance capitalism becomes more widely understood, there is growing interest in developing alternative models that prioritize privacy and data ownership. This includes the development of new technologies and business models that give individuals greater control over their personal data, and initiatives aimed at raising awareness about the risks and consequences of digital surveillance. Critics of data capitalism argue that the system has led to a concentration of power and wealth in the hands of a few large technology companies. These companies have amassed vast amounts of personal data and are able to use it to shape public opinion, influence elections, and control markets. Others argue that data capitalism has the potential to drive innovation and improve the quality of life for people around the world, by providing access to information and new services that were previously unavailable. For making anew model let us first understand the basic model of capitalism properly so we can identify the areas of change.

DATA CAPITALISM MODEL : TRADITIONAL

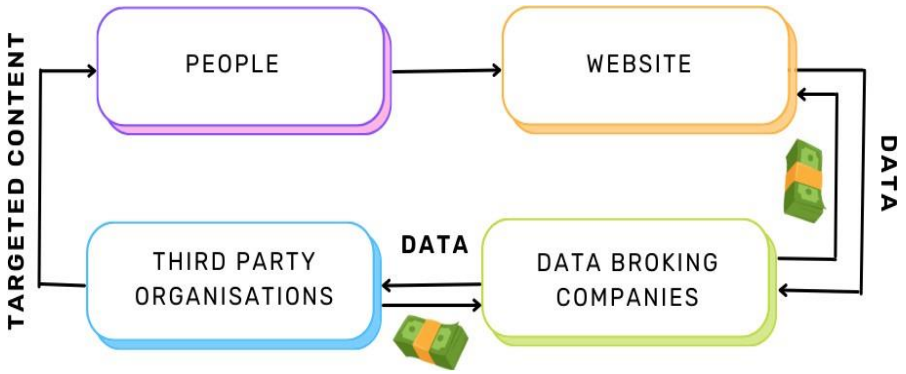

Figure 4

So *Figure 4* shows how a Data Capitalism model works, for making the model simple in nature we have chosen websites as a medium of data collection but organizations use a lot of things and platforms such as websites, apps, electronic devices and many more to collect data about us. In the model we can see how the Data Capitalism actually works with people visiting the website and that website collecting data on us and sending it to data broking companies in exchange for money as well as services as data broking companies often provide their analytical tools and insights in return to website to increase their own operations and then the data broking companies sell this data to third parties which could include individuals, groups , organizations and anyone who knows how to access and based on the data third parties such as companies sendas targeted content in order to manipulate us as a society.
Two things which are absent here is Transparency. The organizations taking data without our knowledge and consent is what makes Data Capitalism unethical and morally wrong, no organization should be able or be allowed to do that and that is where we come to our next thing which is Regulatory Authority. Now three questions arise which are that if the government has been around for so long then why it has not taken any action against it and if it has then what are the actions been taken and why is Data Capitalism so prevalent even today.
So let us first explore the reason behind the inaction of the government, so one reason why the government is not taking action is because it itself is a part of the Data Capitalism model. In the case of the country of the United States of America, there is a part of the constitution which is actually the Fourth Amendment which protects people from unreasonable searches and seizures by the government. Usually when the court or the police or the government wants to find some information about someone or want them to disclose information,

so they would need a warrant without which either of them should not be allowed to but if they just purchase the same data from a data booking site then it is not deemed as illegal in the court of law and it favors the government when data broking sites are so openly giving data about people. Now let us explore what actions have already been taken by the government and regulatory authorities,

The European Union (EU) has taken significant action to enhance data protection rights for individuals and improve business opportunities in the digital market. In April 2016, the EU adopted the General Data Protection Regulation (GDPR), which replaced the outdated Data Protection Directive 95/46/EC (DPD) introduced in 1995. GDPR aims to give citizens greater control over their personal data and hinder the practices of surveillance capitalism. At the core of GDPR is the principle of 'data protection by design and by default,' which reorients data regulation towards building security into its operative foundations. GDPR requires pseudonymization or anonymizing personal data to protect against data breaches. It is directly binding for every member state, and breaches of user privacy require notification of EU data protection authorities within 72-hours. Organizations that rely on significant data processing activity are required to employ a Data Protection Officer (DPO), and high-risk data processing initiatives require a data impact assessment and safeguards.

In addition to GDPR, the EU has implemented the ePrivacy Regulation, which enhances data privacy rights for electronic communications. It requires companies to obtain user consent for cookies and other online tracking technologies and provides greater protection for personal data in electronic communications. The EU has also established the European Data Protection Board (EDPB), which provides guidance and support for EU member states to ensure consistentimplementation and enforcement of GDPR.

Overall, these measures represent a wholesale reorientation towards how data protection is conceived and enacted. Rather than viewing data protection as a consideration or compliance, security is repositioned as the central function around how data is collected, stored, and exploitedby building it into its operative foundations. The EU's actions place meaningful limits on how corporations can collect and use personal data, effectively hindering the practices of surveillance capitalism. (Aho, B. & Duffield, R. (2020)).

Even though the laws are quite strict and people are quite determined to act against suchpractices, just a look around us and we can see how prevalent and influential Data Capitalism is and will continue to be. But maybe it is in the nature of human beings and present in its true essence to not lose hope and so let us try to make a change which would not be alone but was and always will be together.

DATA CAPITALISM MODEL: ALLIED FORCES

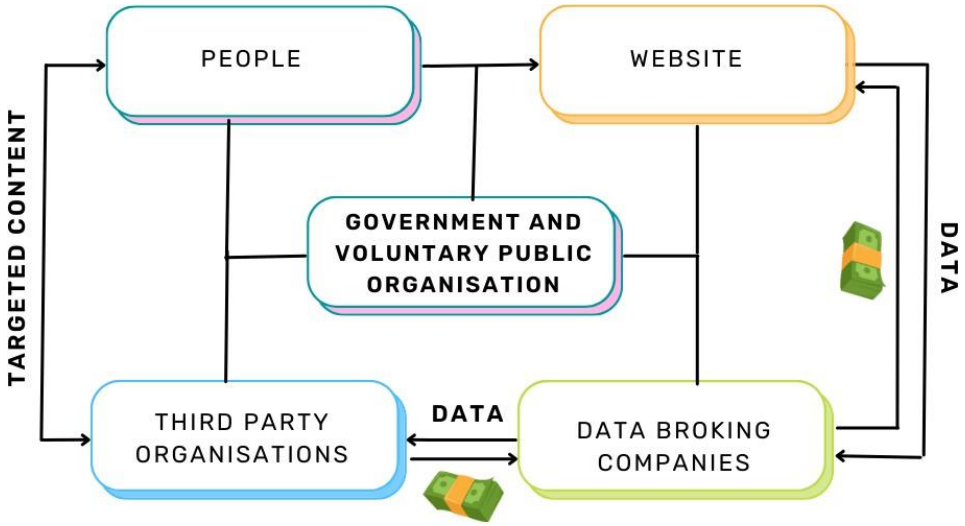

Figure 5

So, the name Allied Forces takes us full circle to the abstract at the start of the paper where discussed how the paper was inspired by an anime famously known as Naruto Shippuden and so in order to stop the Tsukuyomi Ninjas of different lands came together and became one and despite all their differences they became a single force which was known as the Allied Forces.

So let us discuss the Allied Forces model -

And we will start with the start if the cycle which are us the ‘People’ who are trapped in this model -

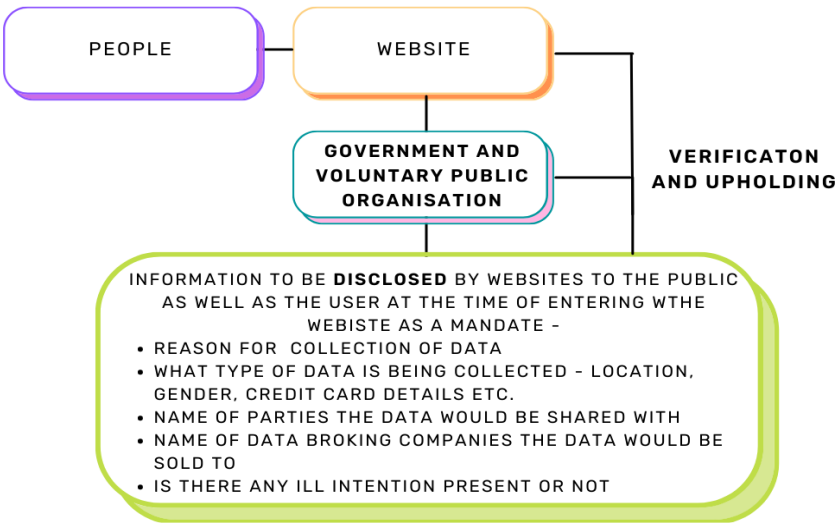

Figure 6

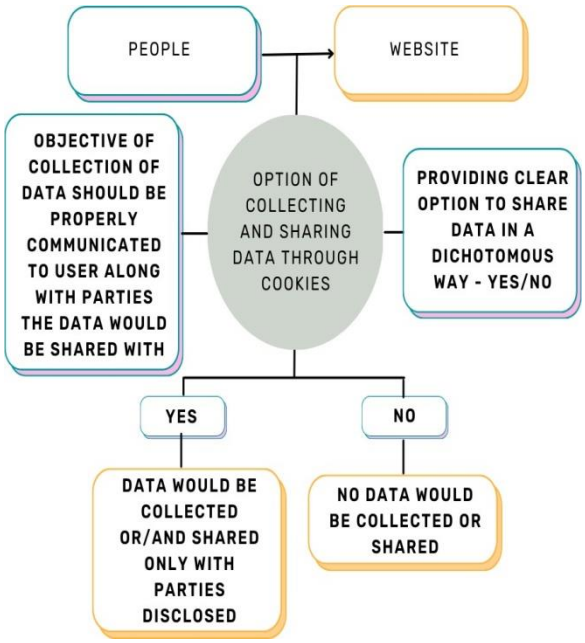

Figure 7

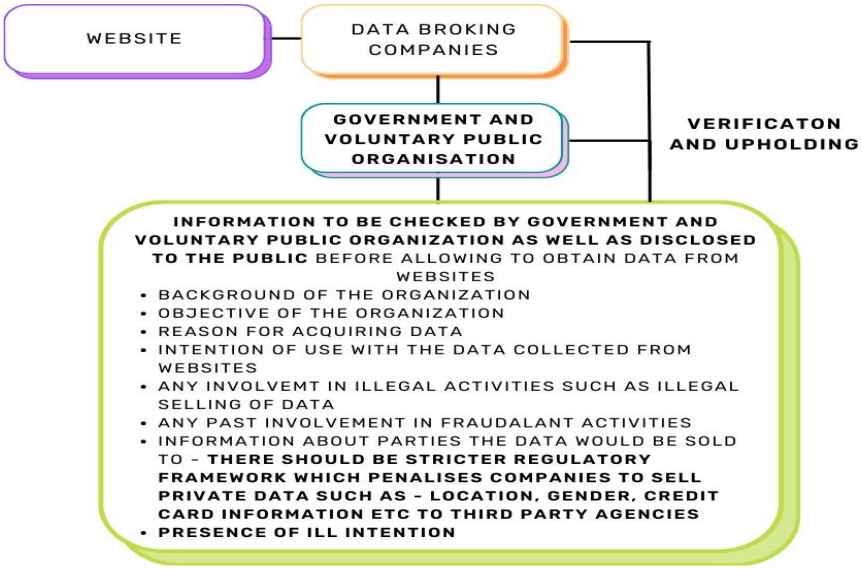

Figure 8

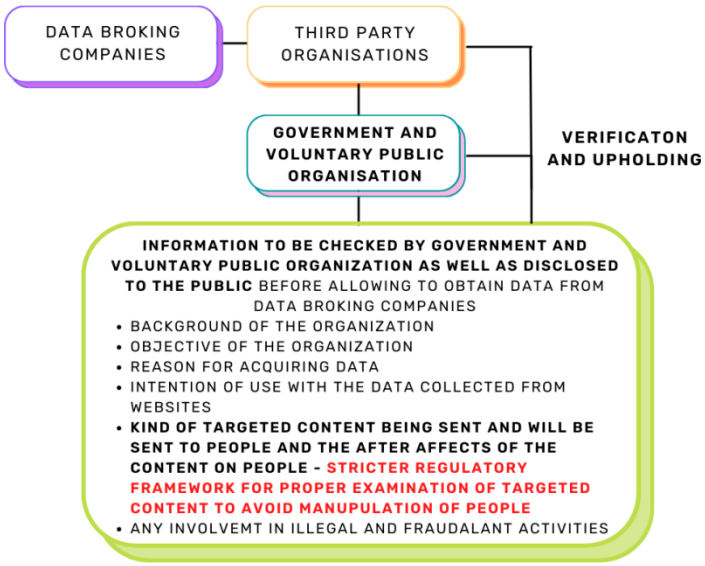

Figure 9

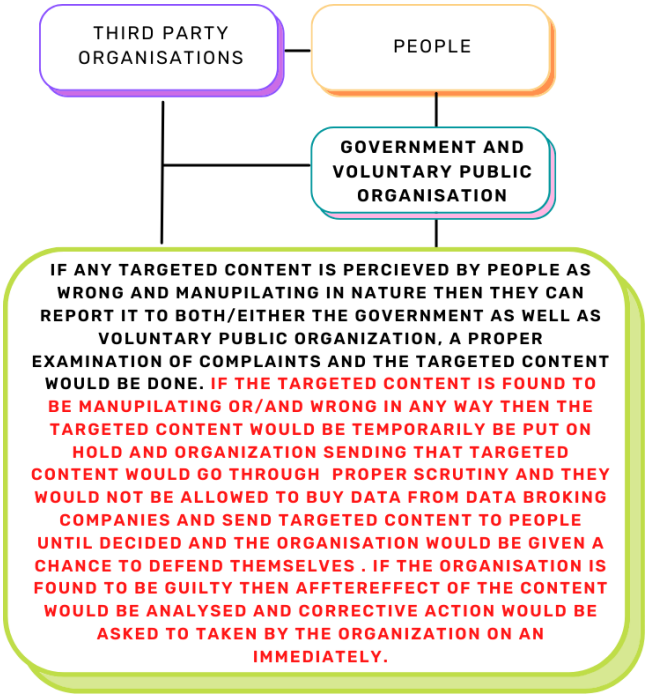

Figure 10

So you can see how each part of the model is explained carefully emphasizing the importance and value of Transparency and Regulation at each part of the model with proper guidelines set for establishing the same. So one part of the model which is at the center is the Government and Voluntary Public organization, so the reason why we have chosen both the government and voluntary public organization is that since government itself is a core part of the Data Capitalism model so aside from the government assuring and checking what happens with data of the people there would be a voluntary public organization consisting of people who have high subject knowledge as well as the will to go against such practices so that when the times comes they could ask the right questions to people who are taking data without consent and stopping them and ensuring that everything goes in a ethical as well as morally right way.

IV. Discussion and Summary

Data capitalism is a concept that has emerged in recent years as the economy becomes more data-driven. The idea is that data is becoming an increasingly valuable resource, and companies that are able to harness and analyze this data are gaining a significant competitive advantage.

However, as data becomes more central to the economy, there are concerns about privacy, data security, and the concentration of power in the hands of a few large companies. A research paper on data capitalism might begin by exploring the historical roots of capitalism and how it has evolved over time. The paper could examine the role of technology and data in this evolution and how these trends are transforming the economic landscape. The paper could then move on to examine the implications of data capitalism for businesses, policymakers, and society as a whole. The paper could explore the potential benefits of data capitalism, such as improved efficiency and innovation, as well as the potential risks and challenges, such as increased surveillance, data breaches, and the concentration of power in the hands of a few large companies.

One of the key contributions of a research paper on data capitalism could be to propose a new model of capitalism that is better suited to the data-driven economy. This new model could emphasize the importance of using data the ethical as well as morally right way to create shared value for all stakeholders, rather than simply maximizing shareholder profits. The paper could explore how this approach could be implemented in practice, and what challenges and opportunities this new model would present.

Finally, the research paper could discuss the implications of this new model for public policy. The paper could explore how governments and regulatory bodies could shape the rules and regulations governing data use to ensure that the benefits of data are distributed fairly and that privacy rights are protected.

In summary, a research paper on data capitalism could provide a comprehensive exploration of the social, political, and economic implications of the current era of technology and the emergence of data capitalism. The paper could propose a new model of capitalism that emphasizes the importance of data in creating shared value and explore the implications of this new model for public policy. Such a paper would be highly relevant in today's data-driven

economy and could contribute to ongoing discussions about the future of the economy and the role of data in shaping that future.

For the future researchers, the concept of Privacy paradox is both beautiful and polarizing and would need a solution someday and perhaps a way to get out of it and that is our responsibility todo and the Data Capitalism : Allied Forces model could certainly like everything, always be improved and made better which we as a society can do together.

Quote -

" ***I would rather have a difference of opinion and than have a difference of hearts" -***

Prof. Irfan Rizvi

Declaration of interests -

- Authors declare that no financial support was received from any individual, organizationor group of people.
- The authors declare that they have no known competing financial interests or personalrelationships that could have appeared to influence the work reported in this paper.
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