

TREND ANALYSIS OF ONLINE PLATFORMS

BY

Onul Ashrafi Tania

ID: 211-25-936

This Report Presented in Partial Fulfillment of the Requirements for the Degree
of Masters of Science in Computer Science and Engineering

Supervised By

Mr. Narayan Ranjan Chakraborty

Assistant Professor

Department of CSE

Daffodil International University



DAFFODIL INTERNATIONAL UNIVERSITY

DHAKA, BANGLADESH

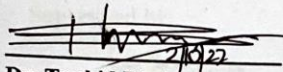
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This Project/Thesis titled “**Trend Analysis of Online Platforms**”, submitted by Onul Ashrafi Tania , ID No: 211-25-936 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of M.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 28/09/22.

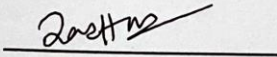
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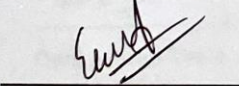
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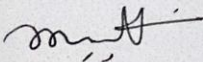
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Assistant Professor

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

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Dr. Mohammad Shorif Uddin, PhD
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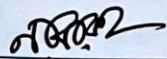
Department of Computer Science and Engineering
Jahangirnagar University

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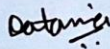
I hereby declare that this thesis has been done by me under the supervision of **Mr. Narayan Ranjan Chakraborty, Assistant Professor, Department of CSE** Daffodil International University. I also declare that neither this thesis nor any part of this thesis has been submitted elsewhere for the award of any degree or diploma.

Supervised by:



Mr. Narayan Ranjan Chakraborty
Assistant Professor
Department of CSE
Daffodil International University

Submitted by:



Onul Ashrafi Tania
ID: 211-25-936
Department of CSE
Daffodil International University

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ABSTRACT

In the present digital age, internet platforms are utilized in a variety of spheres of human existence. Not only do they play a crucial role in business and entertainment, but they also play a growing role in education. At all levels of the educational system, including pre-school, elementary and secondary schools, colleges, and universities, computer applications and platforms are utilized effectively. In the twenty-first century, social media usage has increased in popularity. Businesses are always looking for new ways to use this new platform in their marketing strategies to increase income. In addition, it is no longer essential to visit Blockbuster on a Friday evening to view the newest releases or to mourn bitterly when a beloved television series ends. People may now relax on their couches while watching their favorite television programs and films without leaving their homes. This thesis illustrates the internet platform scenario throughout the last decade, including the pandemic period, and after doing an analysis, it will reflect the near future.

TABLE OF CONTENTS

CONTENTS	PAGE
APPROVAL	ii
BOARD OF EXAMINERS	iii
DECLARATION	iv
ACKNOWLEDGEMENT	v
ABSTRACT	vi
CHAPTER	
CHAPTER 1: INTRODUCTION	1-3
1.1 Introduction	1
1.2 Motivation	1
1.3 Rationale of the Study	2
1.4 Research Questions	2
1.5 Expected Output	3
1.6 Project Management and Finance	3
1.7 Report Layout	3
CHAPTER 2: BACKGROUND	4-14
2.1 Preliminaries	4
2.2 Related Works	5
2.2.1 Prior to the Internet	5
2.2.2 Launch of Social Media Platforms	5
2.3 Comparative Analysis and Summary	6
2.3.1 Modern Online Platforms	6
2.4 Scope of the Problem	13
2.5 Challenges	14
CHAPTER 3: RESEARCH METHODOLOGY	15-33
3.1 Research Subject and Instrumentation	15
3.2 Dataset Utilized	15
3.2.1 Online Education	15

3.2.2 E-commerce	19
3.2.3 Twitter	23
3.2.4 YouTube	24
3.2.5 Netflix	25
3.2.6 Amazon Prime	25
3.2.7 Online platforms during the epidemic of COVID-19	26
3.3 Statistical Analysis	28
3.4 Proposed Methodology	33
3.5 Implementation Requirements	33
CHAPTER 4: RESULTS AND DISCUSSION	34-36
4.1 Experimental Setup	34
4.2 Experimental Results & Analysis	34
4.3 Discussion	35
CHAPTER 5: IMPACT ON SOCIETY, ENVIRONMENT, AND SUSTAINABILITY	37-39
5.1 Impact on Society	37
5.2 Impact on Environment	38
5.3 Ethical Aspects	38
5.4 Sustainability Plan	39
CHAPTER 6: SUMMARY, CONCLUSION, RECOMMENDATION, AND IMPLICATION FOR FUTURE Research	40-42
6.1 Summary of the Study	40
6.2 Conclusions	41
6.3 Implication for Further Study	41
REFERENCES	43-44

LIST OF FIGURES

FIGURES	PAGE NO
Fig 2.1: Social media trends 2022	4
Fig 2.2: Top social media platforms by monthly active users 2022	6
Fig 2.3: Early online education history	7
Fig 2.4: The emergence of e-commerce over the period	9
Fig 2.5: How Twitter started	10
Fig 2.6: YouTube over the years	11
Fig 2.7: The roadmap of Netflix	12
Fig 2.8: Quick chronology of significant events on Amazon	13
Fig 3.1: Top 10 online retailers according to revenue (USD billion)	21
Fig 3.2: Online education (MOOC) growth	28
Fig 3.3: Online Education in Bangladesh for Students	28
Fig 3.4: Increase in the E-commerce (Alibaba) market	29
Fig 3.5: Internet trading in Bangladesh	29
Fig 3.6: The expansion of social media platforms' revenue and user bases.	30

LIST OF TABLES

TABLES	PAGE NO
Table 1: View of Google Trends in accordance with online education, e-commerce, Twitter, YouTube, Netflix, and Amazon Prime.	31-32

CHAPTER 1

INTRODUCTION

1.1 Introduction

The phrase "online platform" refers to a platform that utilizes the Internet for the planning and development of teaching and learning activities.

As they support an increasing number of our contacts, including those in the workplace, the classroom, and our personal life, our reliance on online platforms increases. We utilize these platforms for news and entertainment, connection and communication, self-expression, content creation, and consumption, obtaining work, public transportation, and lodging, among many other uses. ^[1]

1.2 Motivation

Through the use of the internet, a large number of individuals can get benefits and gain autonomy. People are more knowledgeable than ever and can maintain social networks and support systems. Teens can acquire social skills and self-confidence by participating in social interactions and online groups. Due to its economic and social benefits, the most successful online platforms have attracted hundreds of millions or billions of users, making them the world's most popular websites. Online platforms consist of social networking sites, content-sharing websites, mobile applications, communication systems, and travel and lodging websites.

Online communication and routing are mediated by platforms. In addition, they support global and Single Market digital commerce. They enhance customer convenience and options, industrial productivity and competitiveness, and citizen participation. Due to the fact that they foster innovation in the digital era, online platforms affect the success of many businesses that use them to reach customers. Platforms enable enterprises, particularly smaller ones, to expand beyond their home country and target Single Market customers.

The WHO declared a pandemic of coronavirus in March of 2020. Several nations proclaim national emergencies as this lethal and infectious sickness spreads. Some economic transactions may have shifted to online markets as more individuals and businesses choose

online platforms for education, economic, and social activities. Platform adoption rose unequally across industries and geographies.

1.3 Rationale of the Study

The fast expansion of digital technology has altered the modern economy and many facets of society. In particular, over the past two decades, the global platform economy has evolved and grown in prominence. The platform economy currently dominates the market and has extended globally, attracting the most successful and valuable firms. The platform economy has therefore altered how goods and services are traded economically. The increasing use of internet platforms has altered many aspects of our life, including how we share resources, travel, shop, and dine, as well as how we communicate and share experiences, pay for products and services, gain access to healthcare, and share housing and other resources.

Despite the fact that more than 1.2 billion children in 186 countries have contracted COVID-19 and that infection rates vary from nation to country, technology in education was already thriving and extensively used. In 2019, global edtech investments totaled \$18.66 billion, and the market for online education is expected to reach \$350 billion by 2025. Since COVID-19, the usage of language applications, online learning programs, virtual tutoring programs, and video conferencing technologies has increased significantly. In this thesis, an investigation will be conducted to demonstrate the possible function that internet platforms may play in daily life. ^[2]

1.4 Research Questions

The majority of Internet information and communication flow is governed by online platforms. They extend consumer options and convenience, promote industrial productivity and competitiveness, and even increase civic involvement. However, due to the abrupt shift in many regions of the world, some are wondering how such a change would impact the worldwide market and if the usage of online platforms would continue after the outbreak. This investigation will offer answers to the following questions:

- What is the current status of internet platforms?
- How did they perform in the COVID-19 outbreak?
- What is their condition now that COVID-19 has ended?
- How will the circumstance develop in the future?

1.5 Expected Output

Online platforms have become indispensable for supporting folks in adapting to the new reality of living in a pandemic and for allowing them to carry on with their daily lives as normally as possible despite periodic lockdowns caused by the global breadth of the epidemic. Our reliance on online platforms increases as they support more of our interactions, including those in the job, the classroom, and our personal life. We utilize these platforms for news and entertainment, connection and communication, self-expression, generating and accessing material, finding employment, transportation, and housing, among many other reasons. Whether they are utilized for social activities, e-commerce, or online education, there is little doubt that the findings of this study will affect the future of online platforms.

1.6 Project Management and Finance

This dissertation will aim to portray internet platforms in a comprehensible manner. To do this, I collect information from a variety of sources and then analyze it in depth to identify its consequences.

This theory seeks no financial aid.

1.7 Report Layout

This dissertation's principal objective is to examine the evolution of the Internet platform during the past decade, including the pandemic. After analyzing the growth in consumers and income, it generates estimates for the near future. In order to do this, the background is described in Chapter 2, the study technique is discussed in Chapter 3, experimental findings are presented in Chapter 4, the influence on society, the environment, and sustainability is reviewed in Chapter 5, and summary, conclusion, suggestion, and implications for future research are considered in Chapter 6.

CHAPTER 2

BACKGROUND

2.1 Preliminaries

In less than a generation, social media has evolved from automated online data transfer to the digital ecosystem, e-commerce platform, and indispensable promotional tool of the twenty-first century. Social media have been affected by both the rise of digital technology and the need for interpersonal contact. In this narrative, scaled-up interpersonal connections are established and supported.

Merriam-Webster defines social media as "forms of electronic communication (such as social networking websites and microblogging) through which users establish online communities to share information, ideas, personal messages, and other content (such as movies)" 72% of Americans use social media in some capacity, according to a 2019 Pew Research Center research. This percentage was 5% in 2005, the year Facebook went live for the first time. ^[3]



Fig 2.1: Social media trends 2022¹

¹ B. (2021, December 17). 2022 Social Media Trends: Everything there is to know. EOS Mktg&Communication. Retrieved August 15, 2022, from <https://eosmarketing.it/en/2022-social-media-trends/>

2.2 Related Works

This field of research is getting increasingly popular as the usage of internet platforms to coordinate social and economic activities increases. As a result, the quantity of material on online platforms has grown substantially during the previous decade.

2.2.1 Prior to the Internet

Social media officially began on May 24, 1844, when a telegraph operator manually entered a series of electrical dots and dashes. Samuel Morse's first electronic message from Baltimore to Washington, D.C. posed the question, "What has God wrought?" This suggests that he realized the historical implications of his scientific discovery. The history and significance of Morse code are discussed in a recent Washington Post piece entitled "Before Twitter and Facebook, There Was Morse Code: Remembering Social Media's True Inventor," which also discusses the first versions of today's "OMG" and "LOL." Although digital communication has a long history, the ARPANET, a network constructed by the Advanced Research Projects Agency, is frequently credited with the creation of the internet and social media as we know them today. The US Department of Defense established an early digital network that enabled researchers from four universities to share software, hardware, and other data. The National Science Foundation created the NSFNET in 1987, a more robust, countrywide digital network that served as the internet's immediate forerunner. In 1997, ten years later, the very first social networking site was introduced. ^[3]

2.2.2 Launch of Social Media Platforms

According to "The History of Social Networking" on Digital Trends, the growth of the internet in the 1980s and 1990s made possible online communication services such as CompuServe, America Online, and Prodigy. Customers were reached by e-mail, discussion boards, and live chat. In 1997, Six Degrees was the first social media website. In 2001, Friendster started competing. Millions of individuals utilized these straightforward email and internet networking applications. After the advent of LiveJournal in 1999, weblogs, or blogs, became popular. In 2003, when it unveiled its publishing platform alongside Blogger, Google acquired Pyra Labs. In 2002, LinkedIn was founded as a career-focused networking site. In 2020, there will be 675 million users worldwide. It is utilized by job seekers and hiring managers to identify qualified candidates. Despite initial success, two prior social media projects collapsed. 2003 introduced Myspace. Because users could upload music to their personal pages, its traffic surpassed that of all other websites by 2006. Facebook overtook it.

In 2011, Justin Timberlake paid \$35 million for Myspace, however it has since been replaced. In 2012, Google+ was introduced. In 2018, a data security breach exposed the private information of 500 thousand Google+ users. [3]

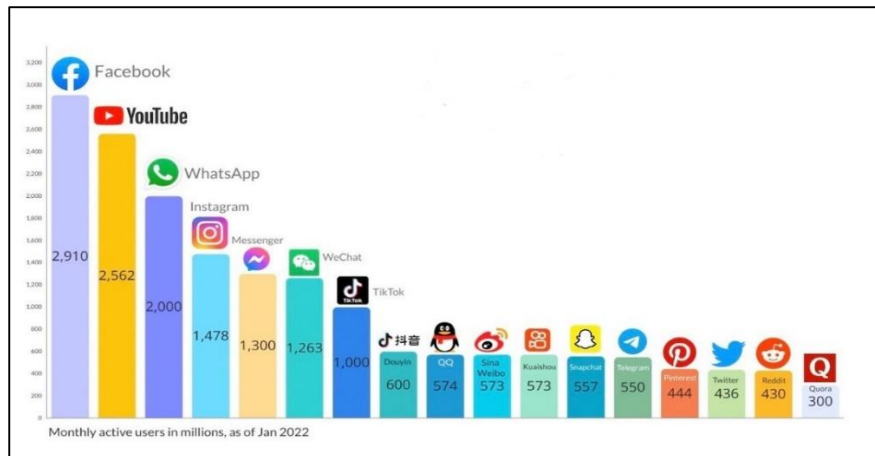


Fig 2.2: Top social media platforms by monthly active users 2022²

2.3 Comparative Analysis and Summary

In the parts that follow, the history of social media will be examined, its relatively rapid socioeconomic development, and the changes it has brought to the marketing industry.

2.3.1 Modern Online Platforms

Accessible content is insufficient for the majority of people today. The majority of modern consumers wish to provide knowledge and select their own consumption. Some refer to this as "the social media revolution." Multiple social media networks vie for the attention of five billion mobile users worldwide. Below are the leading online platforms of 2022.

Online education: Early correspondence courses utilized parcel mail to reach students who were unable to attend class. As communication technologies advanced, radio waves were included into distant education. In 1919, professors at the University of Wisconsin established the first licensed educational radio station. Soon after, television broadened higher education, resulting in the development of telecourses. In the 1930s, Iowa began embracing television in the classroom. In the 1950s, when the FCC set aside airwaves for education, telecourses became popular. The creation of the CPB in 1967 made television

² Most Popular Social Media Networks by Monthly Active Users 2022. (2022, April 7). YouTube. Retrieved August 15, 2022, from https://www.youtube.com/watch?v=tmPebP_ca7A

more educational. "Promote the growth and development of public radio and television" is the mission of the CPB. In 1982, the Western Behavioral Sciences Institute in La Jolla, California introduced online education. The School offers business professionals online computer-based education. In 1985, The New School and Connected Education offered the first online master's degree in media studies. Phoenix began providing online courses in 1989. In 1993, the University of Illinois introduced the first web browser for the Internet, so establishing online education. 1998 marked the introduction of New York University Online, Western Governor's University, California Virtual University, and Trident University International. The Educational Technology Leadership Program began in 1992 at George Washington University. Originally, Dr. William Lynch's program disseminated course materials via Jones Intercable's ME/U. Late at night, students utilized a bulletin board and saw classes via satellite. In May 1994, first-graders received their diplomas. In 1996, Bill Robie brought the ETL Program online, allowing it to be taught entirely online. He developed web-based tools and HTML websites to facilitate asynchronous student-faculty communication, lecture delivery, and assignment drop boxes, among other things. These components have evolved into course management system necessities. 8% of students attended online courses in 2000; 20% did so in 2008. By autumn 2013, over 30 percent of college students were enrolled in online courses. Researchers have discovered significant attrition rates (20-50%) despite the complexity of the statistics on online courses and program completion. Due to the coronavirus epidemic in 2020, a number of universities have switched to online education. Numerous colleges transitioned rapidly to online education and, as a result, imposed numerous online service standards. Microlearning is prevalent for video content. [4]

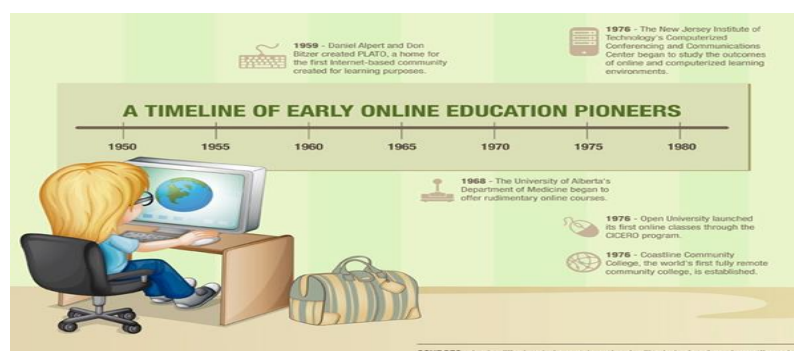


Fig 2.3: Early online education history³

³ Sarkar, S. (2020b, May 16). A Brief History of Online Education. Adamas University. Retrieved August 15, 2022, from <https://adamasuniversity.ac.in/a-brief-history-of-online-education/>

E-commerce: E-commerce is the transaction of goods, services, and data through computer networks. E-growth has been examined by academics and industry representatives. commerce's Internet's arrival in the 1990s created several communication-related opportunities. According to Galinari et al. (2015), the initial phase of e-commerce began in the 1970s, when only large corporations with private communication networks and electronic funds transfer systems were able to conduct business. Identifies four phases of e-commerce growth (Albertin, 2012). During Phase One, companies promoted their goods and services online. This gave rise to e-commerce. According to the source, Phase Two continued to receive orders and distribute product instructions. Logistics began to impact businesses during this time period. According to (Albertin, 2012), phase three was the distribution of products and services utilizing IT (IT). At this time, digital distribution of music and software began. The last phase of EC is vendor-customer engagement, not data transfer or delivery alone. EC and IT have enabled the average internet user to become a consumer. This technology changed the monetization of goods, services, and data, increasing customer happiness and giving buyers and sellers more alternatives. Globalization has increased the natural tendency for businesses to undergo structural changes. The impact of globalization on competitiveness, innovation, and customer demand has created new types of business administration. In recent years, the authors believe that broadband Internet access has increased e-commerce. Since the introduction of 3G and 4G technologies in Brazil in 2012, mobile devices have access to high-speed Internet. With the use of this technology, shoppers can easily compare costs at many retailers. Some customers use it to interact with products in physical stores. Then, they select the optimal sales channel for their objectives. E-commerce evolves in tandem with the development of the digital environment to ensure the use of its contributions, which must be understood and ensured through e-commerce usage considerations. E-commerce development influences IT advancement. E-evaluation commerce's in business operations concludes the stages (Albertin, 2000). Therefore, electronic trade became possible. As customer demand for comfort increased, modern firms altered their organizational structures accordingly. Utilizing modern technologies is a popular tactic. ^[5]

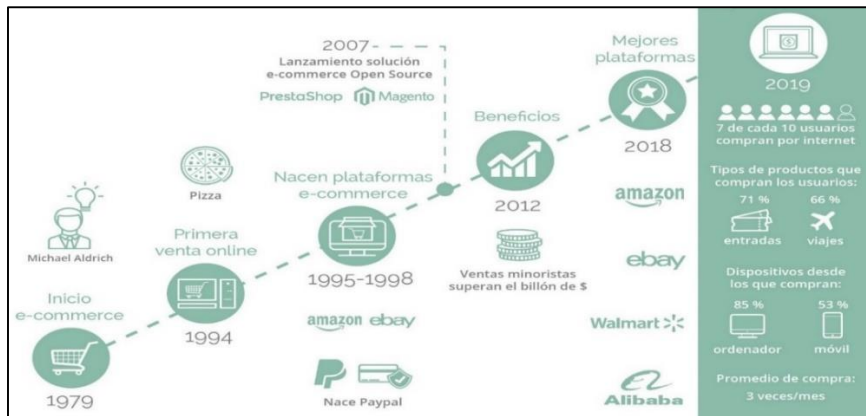


Fig 2.4: The emergence of e-commerce over the period⁴

Twitter: On July 15, 2006, Odeo's podcasting business in San Francisco unveiled Twtrr, a group SMS. The free program enables users to send a single text message to a single number ("40404") in order to deliver brief status updates to groups of friends. In the subsequent years, Twtrr, a basic "microblogging" service, evolved into Twitter, one of the most prominent social networking services. Evan Williams, one of Twitter's co-founders, gained prominence in Silicon Valley by creating and selling Blogger to Google in 2003. William and Noah Glass co-founded Odeo in 2005, but Apple's iTunes service rendered it outdated in the autumn (including a built-in podcasting platform). Jack Dorsey, one of the business's engineers, conceived the idea when Williams urged the 14-person workforce to innovate for the struggling company. By March 2006, a functional prototype and the moniker Twtrr were in place. Bird sounds influenced the creation of Twitter. @ The first Twitter was sent by Jack on March 21. ("I'm simply posting my Twitter"). Odeo's podcasting platform was failing in July 2006, when Twtrr went public. Williams reportedly bought out Odeo's investors, renamed the company Obvious Corporation, and dismissed Glass, whose contribution to Twitter (including the name) would not become public knowledge for years. Six months later, Twtrr became Twitter. Upon the start of the service, its makers imposed a 140-character limit on messages; this was eventually increased to 280. In March 2007, Twitter took off when more than 60,000 tweets a day were exchanged at South by Southwest in Austin, Texas. The New York Times reports that the company has more than 200 million active users in 2013. When it went public in November, the firm had a valuation of about \$31 billion.

⁴ A. (2021, January 27). Historia y evolución del e-commerce. AT Language Solutions. Retrieved August 15, 2022, from <https://www.at-languagesolutions.com/en/atblog/historia-ecommerce/>

With Trump's victory, the company's popularity increased. Trump used Twitter often throughout his campaign and as president. [6]

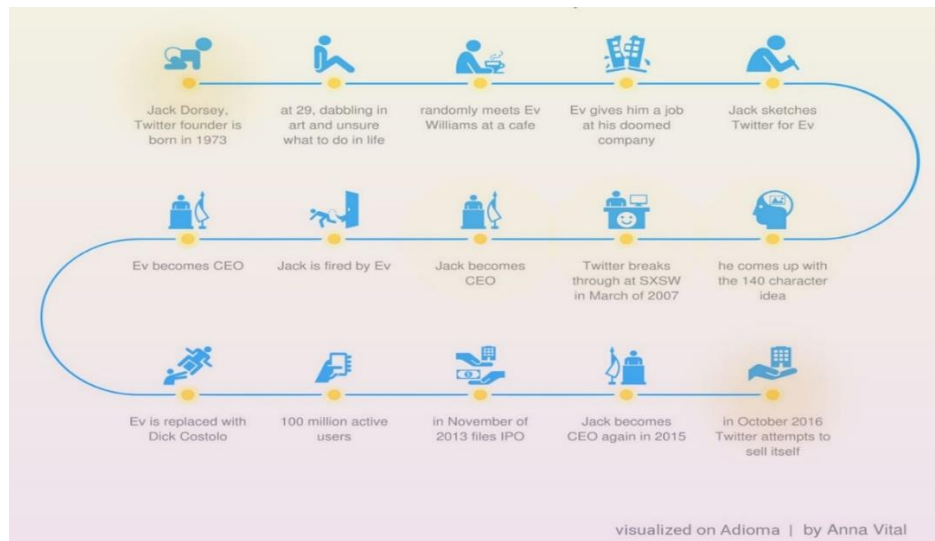


Fig 2.5: How Twitter started⁵

YouTube: Internet videos are now synonymous with YouTube. Prior to 2003, the largest online video website did not exist. Since 2005, the website has revolutionized how we access and consume internet content. As content and photo-sharing websites grew in popularity in 2005, YouTube's creators recognized a problem: there was no simple way to share videos. Steve Chen studied computer science at the University of Illinois at Urbana-Champaign, whilst Chad Hurley studied design at the Indiana University of Pennsylvania. The two met countless future employees at PayPal in San Jose, California, following their graduation. In 2005, Hurley registered the trademark, logo, and domain for YouTube. Three months later, in May 2005, the beta version of www.youtube.com was released. In November 2005, Sequoia Capital provided backing for YouTube. December marked YouTube's incorporation. The initial office was located in San Mateo, California, above a pizza and Japanese restaurant. The number of employees increased, desks expanded, wires were tangled, and rats emerged. Act quickly! Despite its popularity, YouTube was unable to generate revenue. Even worse, it was sued for copyright infringement. Google observed the brand's rapid expansion and financial difficulties. The company's primary focus was Google Videos, which was ultimately canceled. In October of 2006, it arrived. YouTube had sixty-five workers. The day the agreement was announced, YouTube relocated to a former GAP location. After one month,

⁵ Vital, A. (2017, August 10). How Twitter Started - Infographic Timeline. Adiomia. Retrieved August 15, 2022, from <https://blog.adioma.com/how-twitter-started-infographic/>

the agreement was concluded. YouTube is the third most popular website in the world and the largest online video destination. Every day, twice as many individuals visit the internet as tune in to the three largest U.S. networks during prime time. It is the largest video-sharing community in the world, with over 10 million members, advertisers, and partners. 24 hours of film are uploaded every minute. YouTube is used by hundreds of millions of people to learn about and alter the world through video. [7]

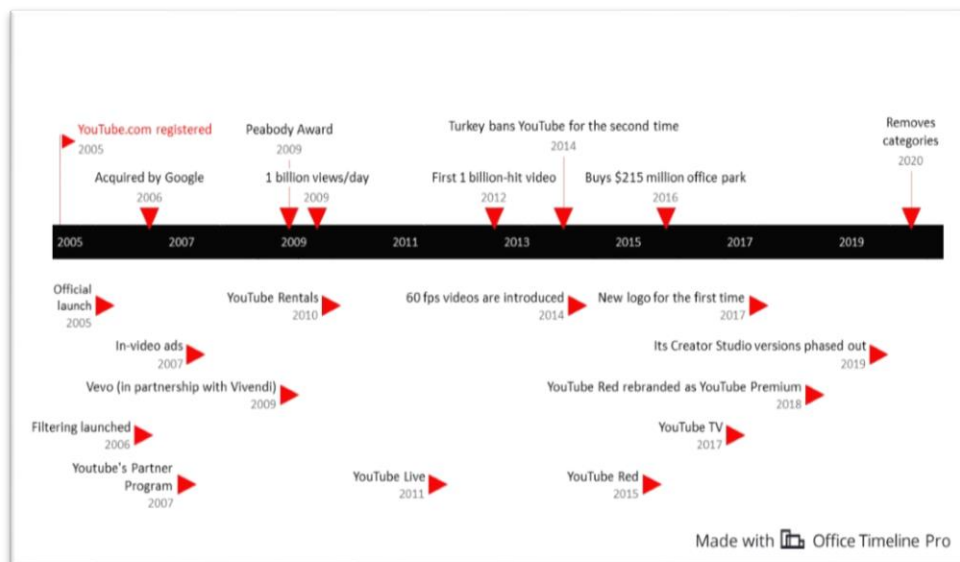


Fig 2.6: YouTube over the years⁶

Netflix: Reed Hastings and Marc Randolph started Netflix in California's Scotts Valley. Reed Hastings was fined \$40 for returning Apollo 13 to a defunct Blockbuster six weeks late. While exercising, he devised a method for ordering a movie online and having it mailed to you. According to Randolph, the narrative is a joke. Reed was CEO of Pure Atria in 1997, while Marc was the vice president of corporate marketing. Marc thinks that Reed told him, "Let's come up with a plan, you can manage it, and I'll fund it," emphasizing that a merger would result in their unemployment. Marc Randolph argues that the story was a hoax. Reed was the CEO of Pure Atria in 1997, while Marc was the VP of corporate marketing. Reed, according to Marc, threatened to fire them both if the merger went through and told them, "You run it, I'll fund it." Marc found a brand-new Japanese DVD. DVDs would soon supplant VHS as the dominant format for home video. Reed was lured while driving down Highway 17. In July 1997, Marc and Reed purchased Patsy Cline's greatest hits CD in Santa Cruz and

⁶ Stumbles, T. (2022, August 15). History of YouTube: a timeline. Office Timeline Blog. Retrieved August 15, 2022, from <https://www.officetimeline.com/blog/youtube-history-timeline>

had it mailed to Reed's residence. Unblemished CD indicated e-commerce success. Reed Hastings established Netflix in 1997 with \$1,9 million. Subsequently, additional investors joined. Reed Hastings, 37, is chairman and owns 70% of the company, while Marc Randolph, 39, is CEO and holds a minority investment. Netflix has finally developed a lucrative business model: a \$19.95-per-month membership service with unlimited access and no due dates or late fees. In addition, it had a "Queue" that users could use to buy DVDs, as well as an automatic delivery system that sent a DVD after each had been returned. Netflix used white envelopes before to the year 2000, when they moved to yellow envelopes. After a year, the corporation switched to red envelopes. The DVDs were supplied by Netflix in a compact, pre-paid envelope. [8]

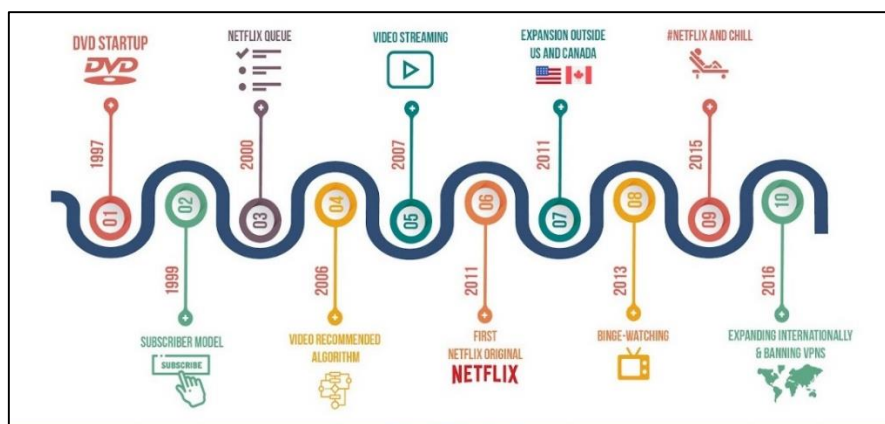


Fig 2.7: The roadmap of Netflix⁷

Amazon Prime: The launch of Amazon.com occurs on July 16, 1995. Within a month, all 50 U.S. states and 45 nations received books. The founder Jeff Bezos's motto, "Get big fast," enabled Seattle-based Amazon to become an e-commerce behemoth, selling everything from groceries to live ladybugs. Bezos earned with a degree in electrical engineering and computer science from Princeton University in 1986. He then worked in the financial services business in New York City. After recognizing the business potential of the Internet, he relocated to Washington State and launched Amazon in 1994. The company was originally going to be named Cadabra (as in abracadabra), but after someone mispronounced it as "cadaver," Bezos changed the name to Amazon in honor of the mighty river in South America since it wouldn't limit him to selling a certain product or service. On April 3, 1995, the first order placed on Amazon was for a scientific book titled Fluid Concepts and Creative Analogies. When Amazon.com went live to the public in July 1995, Bezos said that the company was "the

⁷ Rangaiah, M. (2020, January 13). Using Data Handling and Digital Marketing to maximise customer experience: A Netflix Case Study | Analytics Steps. Analytic Steps. Retrieved August 15, 2022, from <https://www.analyticssteps.com/blogs/using-data-handling-and-digital-marketing-maximise-customer-experience-netflix-case-study>

largest bookstore on the planet." Amazon generated revenues of \$15.7 million in 1996, and Bezos went public in 1997, raising \$54 million. Bezos delivered his company's one millionth order to a Japanese customer who wanted a biography of Princess Diana and a Windows NT reference. In 1998, Amazon began selling CDs, and the following year, toys, gadgets, and tools. Amazon has sent 20 million goods to 150 countries by December 1999. In December, Bezos was voted Time's Person of the Year. In 2000, Amazon established a program that allows other suppliers to sell alongside Amazon's products. Amazon continued to spend in its fast expansion until 2003. Amazon Prime is a subscription service that provides lower one-day delivery rates and free two-day shipping on eligible items inside the continental United States for \$79 (equivalent to \$110 in 2022). In 2008, Amazon launched "Amazon Premium" in France, in 2011 in Italy, in 2013 in Canada, in March 2017 in Mexico, in September 2020 in Turkey, in September 2021 in Sweden, and in October 2021 in Poland. In 2007, Amazon introduced the initiative in Germany, Japan, and the United Kingdom. Amazon Prime is now accessible in Ireland and will continue to expand in 2022. Prime members are located in 22 countries across North America, Europe, and Asia-Pacific as of October 2021. [9]

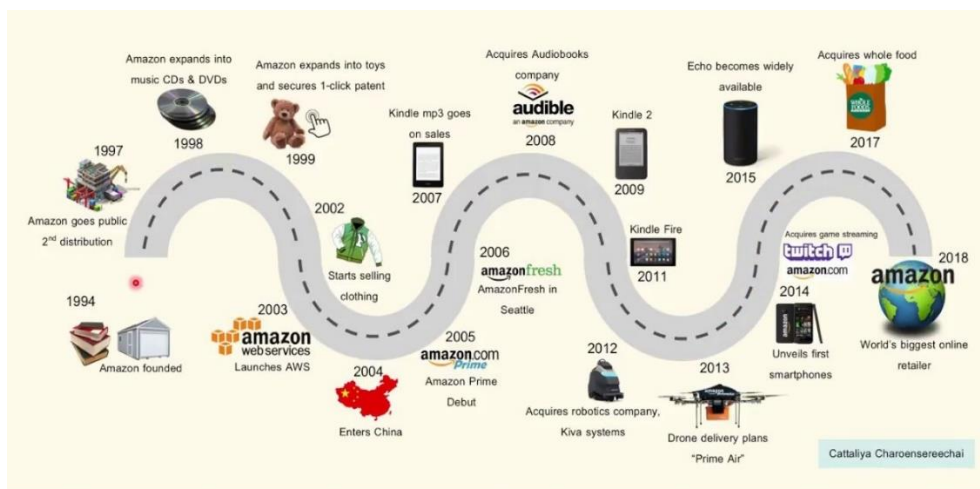


Fig 2.8: Quick chronology of significant events on Amazon⁸

2.4 Scope of the Problem

Social networking has altered the global culture. The widespread adoption of these instruments has altered our capacity to form alliances, obtain news, and organize for political change. Although social networking sites use one-third of the world's internet time, not

⁸ Brief Amazon's timeline of its major events 1994 - 2018. (2018, October 18). YouTube. Retrieved August 15, 2022, from <https://www.youtube.com/watch?v=tD8qykSx30w>

everyone uses them. More than five billion people use mobile devices, and social media sites compete for their attention.

As social media have increased, social conduct has also evolved. Today, one-third of the world's population employs an idea that was once inconceivable. When quick changes occur, such as those induced by social media, negative consequences are expected. Whether modern communication technologies, particularly social media, affect our mental health is an important subject. Our World in Data has the evidence.

This study employs COVID19 and earlier datasets for statistical analysis. Following data collection, the past, present, and future of the web platform will be provided.

2.5 Challenges

The process of getting authentic data may be lengthy, and drafting a report that complies with that data can be even more difficult.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Subject and Instrumentation

The global digital population and social media platforms continue to expand. Social networks, which provide users with access to information, are pervasive and alter how people connect worldwide. These platforms are utilized by people of all ages for employment, socializing, dating, politics, and daily communication. Early social media sites catered mostly to adolescents. 58.5 percent of the global population use social media. Since the previous year, 424 million more people had signed up to use it. Daily social media use is 2 hours and 27 minutes. As of April 2022, 63 percent of 5 billion people were online. 4.65 billion individuals, or 93%, utilized social media.

In 2022, Internet users spent an average of 147 minutes per day on social media, up from 145 minutes in 2021. Residents of the Philippines spend an average of 3 hours 53 minutes every day on social media. Each day, Americans spend only 2 hours and 3 minutes on social media. Global social network penetration is 54%. At 79%, Western Europe has the greatest percentage of social media penetration. People like uploading humorous or entertaining content, but they mostly use social media to stay in touch with friends and current events. ^[10]

3.2 Dataset Utilized

Online platforms consist of online businesses, social media, content venues, app stores, price comparison websites, platforms for the collaborative economy, and web browsers. They boost consumer options, industrial competitiveness and productivity, and civic engagement. The main internet platforms in 2022 are:

3.2.1 Online Education

In our digital era, online education has expanded. It is expanding without regressing. E-learning, often known as distance learning, does not occur in a traditional classroom with a live instructor. This opportunity has been enhanced by any form of education, including school, college, and institutional. Online education provides adaptability, independence, time management, and self-motivation. Negatives include more workload, greater independence, and less social interactions.

At least one online course was taken by 31% of college students, while 14% were enrolled in online programs. Remote learning stretches back to the postal service in the nineteenth century. As the use of computers and the internet increased, online education replaced distant learning. There have been accredited online degree programs for more than a decade. Technology advancements, lifestyle requirements, and the increase of high-quality online education choices at authorized online colleges and universities have all contributed to the acceptability of online learning. In 1995, just 4% of businesses utilized online learning. Now, it is 90%. According to research on success rates, the business sector will be the primary driver of online education's growth in the future. Metrics indicate that more students favor online education. In 2015, 9% of global students participated in a MOOC. Online education is abundant. Tuition for foreign students has decreased. International students select distance education since it is less expensive.

Trends in online education cannot be studied without faculty input. Online education grew slowly at first. Numerous schools are gradually embracing this instructional method. 46% of professors offered an online course in 2019, an increase from 39% in 2018. For many pupils, online institutions have fast integrated remote learning possibilities. In 2017, 4 million students studied online. Less than 70% of online instructors in 2019 developed their own courses, while 17% utilized pre-made courses. Online education data also reveal the conduct of educators. Without a set curriculum, online learning platforms enable instructors to create their own programs. This enables instructors from throughout the globe to express their distinct insights. Individually designed 30-minute classes benefit students. Notable e-learning systems include iSpring and 360Training. Due to other obligations, 47% of students enrolled in online degree programs in 2018. There are 6,932,074 students enrolled in online degree-granting courses in the United States. ^[11]

According to data, traditional classes are longer. In today's fast-paced environment, individuals must accomplish more in less time. Online schooling is favored since it is more efficient. According to the research, e-learning requires 40% to 60% less time than traditional learning. Employers are willing to pay for time-saving devices. Major corporations profit from the expanding online education market. E-learning helps businesses save time. Forty percent of Fortune 500 organizations use e-learning. In a survey of 2,500 businesses, those with "comprehensive training programs" earned 24% higher profit margins and 218% more income per employee.

Global e-learning has expanded by 900% since 2000. In the largest consumer market in Asia, income from online learning climbs 20% yearly. Thailand, India, China, and the Philippines all have annual growth of over 30%. Mobile e-learning was worth \$38 billion by 2020. From 2017 to 2022, it is anticipated that \$6 billion will grow. With projected learning investment, the self-paced online market is anticipated to decrease to \$33.5 billion by 2021. The US government spent \$2.59 billion on self-paced goods in 2019.

In gamification or educational entertainment, augmented and virtual reality enable virtual classrooms. In 2020, \$300,000,000 is anticipated. In 2018, microlearning represented 60.7% of e-learning. (a condensed e-learning model) Sixty percent of internet users have completed online courses. So they may conclude whenever they like (both in terms of time and location). 50% of students and 80% of businesses make use of e-learning. E-learning is 40% to 60% faster than traditional learning. Online learning is popular with businesses. 42% of institutions saw a gain in revenue as a result of decreased travel expenses. Europe's internet businesses employ 25 people and generate £3 million. States within the European Higher Education Area want online education to supplement traditional education rather than replace it. In comparison to one-on-one teaching, e-learning improves retention by 8% to 10%. This is because learning can be rapidly assessed and is more easily managed. 28% of organizations utilize online compliance training. Online education would increase employee engagement by 18%.^[12]

The statistics for this trend are given below.

After ten years, 220 million students, excluding Chinese, will have access to MOOCs. 500 micro-credentials and 3,100 courses were released by providers in 2021. In 2021, 40 million additional students enrolled in a MOOC, compared to 60 million in 2020. (due to the pandemic).^[13]

More than 20,000 instructors and 12 million students are enrolled in courses on Udemy. Teachable has 7500 subject matter experts and 20,000 online courses. 3 million students attend. Additionally, Ruzuku, Academy of Mind, and Skillshare pay teachers up to \$40,000 per year. By 2017, 30 percent of institutions in the United States and Canada used Blackboard. 75% of American schools utilized these platforms. 70% of e-learning users come from the United States and Europe. Daily, 63% of U.S. students employ online learning. In 2013, when LinkedIn acquired Lynda.com for \$1.5 billion, LinkedIn Learning was established. Its cost soared. Videos are widely used in online teaching. Around 2017, Sony's

PlayStation VR headsets brought in \$500 million. 67% of college students have completed cellphone-related coursework.

12 % of those who did not finish would have if given the opportunity. Enrollment in online degrees increased from 3.8% in 2008 to 10.6% in 2016. The typical workweek learning time is 24 minutes, which limits career advancement. Corporate online learning is anticipated to reach \$50 billion by 2026, a 15% yearly increase. Distance education figures indicate that 17% more women than males participate in online courses. ^[14]

Online education in Bangladesh is increasing. These institutions offer low-cost or free education. The major online education platforms in Bangladesh.

10 Minute School

10 Minute School is one of the most recent additions to online education in Bangladesh. It began as a small effort but is now developing fast, with about 150000 students regularly attending the classes. It is now sponsored by the telecom giant ROBI and backed by a number of notable individuals.

Shikho

Shikho is one of Bangladesh's largest online learning platforms. They are redefining how students learn outside the classroom by delivering high-quality animated video lessons, interactive live courses, graphical learning journeys, continual evaluation, and performance data.

Bohubrihi

The name of Shikho's venture is Bahubrihi. It is a platform for training professionals, students, and independent contractors of all ages skill improvement. Its career track programs and live courses, designed by seasoned industry professionals, will empower anybody to build a successful career locally and abroad.

Shikkhok Batayon

By creating this website, the government of Bangladesh is attempting to digitalize education in our country. The majority of the website's enhancements are PowerPoint presentation slides that explain various secondary school-level academic terms and subjects. There are three possible common study topics: General, Madrasa, and Technical. The information is

prepared and uploaded by instructors from many madrasas and schools around the country. The website is completely free to use. ^[15]

eShikhon

At eShikhon, one of the most trusted online education websites in Bangladesh, one may study education and benefit from the computer learning content. On the eShikhon online platform, a variety of courses are accessible for students of varying ability levels. Moreover, students can take quizzes on our online platform, eShikhon, and view pre-recorded lecture videos that are chapter- and topic-specific. Thus, eShikhon is a recent addition to Bangladesh's online education environment.

StudyPress

StudyPress concentrates on tests for competitive jobs in the public or commercial sector. The website serves as a resource hub for students who aim to excel on competitive exams such as the BSC, tests for government posts, and bank professions.

Others

There are also Amar Pathshala, Light of Hope, Srijonshil, Repto Education Center, Educarnival, and Shikkhok.com in Bangladesh.

3.2.2 E-commerce

In recent years, e-commerce has become a crucial component of global trade. The introduction of the Internet revolutionized retail, as it did several other industries. As a result of the digitalization of modern life, almost every nation today has online shoppers. As worldwide Internet use and access increases, so do digital shoppers. In 2020, over 2 billion people made purchases online, and e-commerce revenues hit \$4.2 trillion. 35% of customers now utilize international websites, up from 26% in 2014. In 2015, 82% of clients made foreign purchases. These customers spend \$300 annually on foreign goods, and 26% prefer U.S.-based firms. In 2014, cross-border sales in the United States hit \$294 billion and are expected to reach \$440 billion by 2018. In 32 countries, eMarketer anticipates double-digit eCommerce growth in 2020. China is the most rapidly expanding eCommerce market. 61% of American internet users made a purchase after reading a blog. 55% of unhappy internet users inform their relatives and friends. 76% of respondents prefer Christmas shopping in-store. Over 26 million eCommerce websites exist. A recent IPC report* indicates that

international cross-border e-commerce sales are promising. In 2017, it is anticipated that worldwide retail e-commerce sales would exceed \$2.3 trillion USD, with the United States and China contributing for \$1.6 trillion USD. IPC estimates that this represents about 70% of worldwide e-commerce. At 12%, Western Europe will have the lowest e-commerce growth rate of any area. E-commerce revenues are anticipated to reach \$337 billion in 2017. With projected 2017 sales of \$110 billion USD, the U.K. dominates the business. Asia-Pacific has the highest pace of e-commerce growth, increasing 30% between 2016 and 2017. In 2018, China's mobile e-commerce sales might surpass \$882 billion, up 42% from 2016. In the United States, mobile devices will account for 73% of all retail e-commerce transactions, the highest percentage in the world. India ranks second in mobile e-commerce sales with \$16 billion, up 61% from 2016 and accounting for 72% of all purchases. In 2017, South Korea ranked third for mobile e-commerce sales, accounting for 59% of retail e-commerce sales. In comparison, mobile e-commerce sales in the United States in 2017 might exceed \$176 billion. Global e-commerce revenues might exceed \$5.5 trillion in 2022. This amount is likely to increase over the next several years, demonstrating the importance of e-commerce to businesses. 20.3% of all retail purchases will occur online in 2022. This year, about \$0.22 of each retail dollar will be spent online. ^[16]

Amazon is the market leader as its revenue increases. Its market value in January 2022 was \$1,649 billion. This is in contrast to 941 billion in 2020 and 1,634 billion in 2021. Amazon's annual revenue surpassed USD 111 billion in 2021, and monthly site traffic has also increased. In 2021, desktop and mobile traffic averaged 5.2 billion per month. Each visit to Amazon lasted an average of 6 minutes and 8.58 pages. 28% of consumer purchases are finished in less than three minutes. According to Jeff Bezos, 50% of Amazon purchases are fulfilled within 15 minutes. In 2021, eBay had 1.7 billion monthly visits, making it one of the most visited e-commerce platforms (desktop and mobile). eBay is one of the largest P2P online marketplaces despite allowing the selling of new products. eBay's stock price declined in the first quarter of 2021, yet the company still earned \$3 billion. In 2022, the market value of the corporation increased from USD 34.64 billion in 2021 to USD 41.517 billion. eBay's market capitalization is 37.39 billion USD, putting it eighth. Alibaba Group reported sales of USD 31,147 million for the September Quarter 2021, up 29% year-over-year. By September 2021, the Alibaba Ecosystem will have 1.24 billion customers, an increase of 62 million from June 2021. 953 million of the 1.24 billion users reside in China, whereas 285 million do not. These figures indicate a net quarterly increase of 41 million and 20 million Alibaba Group annual

active users. In 2021, there were 410,3 million monthly visits to Walmart's website. Average visitors spent 4 minutes and viewed 5.20 pages. In 2016, Walmart had 67.39 billion in e-commerce sales. According to Walmart's Earnings Release Report (FY 22 Q3), comparable sales increased by 9.2% and e-commerce sales increased by 8%. More third-party vendors joined its online marketplace in 2021. 129,752 merchants in 2021, about twice as many as in 2020 (69,351). Jingdong, with 471 million clients, is the largest store and online shop in China. The revenue for JD's fourth quarter climbed by 40% year-over-year, from \$24.5 billion in 2019 to \$34.4 billion in 2020, while sales for the fiscal year increased by \$31.43 billion, or 379.3%. JD has more active customers than the whole U.S. population, more than 900 warehouses, and more than 190,000 delivery employees. [17]

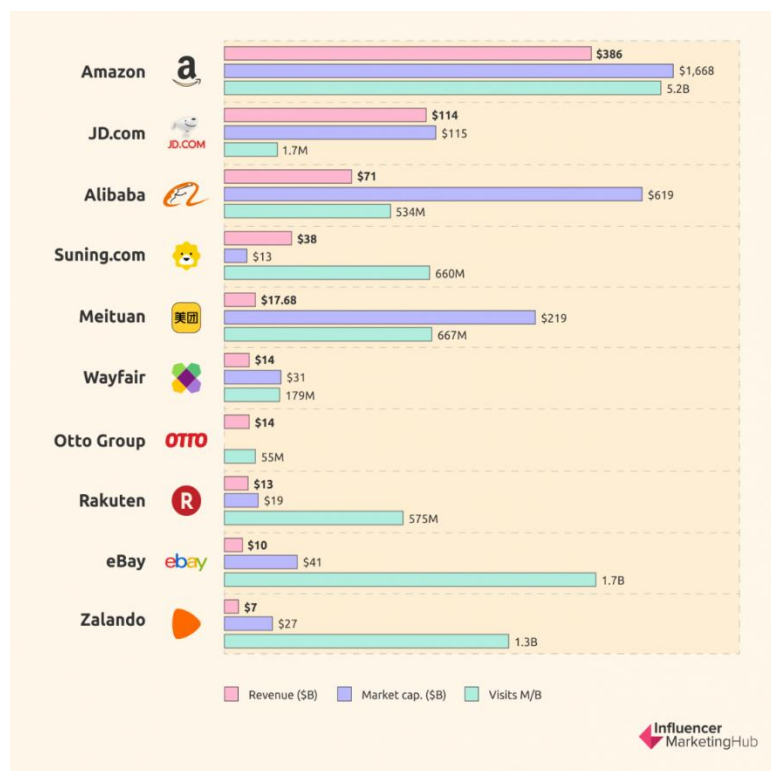


Fig 3.1: Top 10 online retailers according to revenue (US\$ billion)⁹

Since the early 2000s, when Bangladesh lacked a dependable online payment infrastructure and widespread internet access, the country's eCommerce industry has expanded significantly. In 2009, Bangladesh Bank authorized internet transactions. In 2013, Bangladesh Bank authorized international credit cards for Internet purchases. ITU's 2017 ICT

⁹ Mileva, G. (2022, June 24). A Comprehensive Guide to the World's Top 50 Ecommerce Companies. Influencer Marketing Hub. Retrieved August 17, 2022, from <https://influencermarketinghub.com/top-ecommerce-companies/>

Development Index placed Bangladesh at position 147 out of 176. The Bangladesh Telecommunication Regulatory Commission (BTRC) predicts that there will be 123.82 million internet users worldwide in December 2021, of whom 10.09 million will use broadband and the remainder will employ mobile devices.

Some statistics on this development:

Daraz

Daraz is a well-known e-commerce website in Bangladesh that sells clothing, electronics, and home goods. It was established in 2010 and has 10.09 million monthly visitors. This is the most popular shopping website in Bangladesh. This online shopping center sells apparel, jewelry, footwear, furniture, toys, and even automobiles. Daraz has collaborated with various industry titans. The website of Daraz suits their demands. In Pakistan, Bangladesh, Nepal, Sri Lanka, and Myanmar, Daraz Group runs e-commerce platforms. In May 2018, Alibaba Group purchased Daraz Group. Daraz is one of the leading eCommerce sites in Bangladesh.

Chaldal

The 2013-founded website Chaldal receives 2.04 million monthly visitors. Chaldal.com, one of the major websites for purchasing groceries online in Bangladesh, delivers food to customers' homes. In addition to fruits, vegetables, grains, fish, and meat, the online market sells home appliances, beauty & health products, and other goods. Chaldal argues that Bangladeshis should not have to leave their homes to obtain food. It strives to give convenience and save customers' time. Frequently, Chaldal.com organises and advertises sales and discounts via social media. First-time purchasers may receive a 3% discount. Free home delivery is available with a minimum purchase of \$100. Chaldal supports both iOS and Android. Cash on delivery, bKash, Mastercard, and Visa credit cards are accepted.

Bikroy.com

Bikroy.com has attracted customers despite the abundance of online shopping sites by employing an original strategy. Bikroy.com is a substantial online marketplace for the purchase and sale of goods. Since its 2012 launch, Bikroy.com has averaged 2.53 million monthly visitors every month. Bikroy.com features the most popular products. These are the most competitive prices available locally. Bikroy.com provides free product advertising in all

fifty states, including Alaska. The website's authority evaluates each product to guarantee customer happiness.

Rokomari.com

Rokomari.com is a trustworthy online bookstore in Bangladesh. The fact that they have their own home delivery system in Dhaka, Chittagong, and Rangpur is impressive. They provide inexpensive books and electronics. Books and electronic accessories are inexpensive. MasterCard, VISA, Bkash, and DBBL are acceptable payment methods.

Pickaboo

Pickaboo had 361,911 monthly visitors in 2016. The market provides authentic cellphones, mobile devices, computers, accessories, perfumes, and watches. Online retailer Pickaboo focuses on selling electrical and technological goods. Thus, device-shopping is rendered obsolete. There are options for same-day and next-day shipment, and defective items can be returned. More payment options are available, including EMI, BKash, swipe-on-delivery, cash-on-delivery, Visa, and MasterCard.

Others

Bagdoom, BDJobs, BoiMela, Clickbd, foodpanda, Sohoz, Othoba, and Ajkerdeal are other e-commerce websites in Bangladesh.

3.2.3 Twitter

On average, 500 million tweets are sent every day on Twitter. According to Twitter's user statistics, the number of users is constantly increasing. In March 2022, Twitter had 436 million monthly and 206 million daily active users. (Twitter, 2021). The number of monthly unique mobile users on Twitter increased by 11% in the second quarter of 2021. (YoY). There are 37 million American users. "mDAU" refers to Twitter users who "logged in or were otherwise authenticated and visited Twitter" via the company's homepage or ad-displaying applications on any given day. This is Twitter's best estimate of the number of active users in your target market. The United States has the most Twitter users, 73 million. (Statista, 2021). The United States has the most Twitter users (73 million as of July 2021). India's 22.10 million Twitter users are second only to Japan's 55.55 million. These Twitter statistics are favorable if you're targeting U.S. customers. The age distribution of Twitter users is as follows: 13 to 17 (6.6%), 18 to 24 (17.1%), 25 to 34 (38.5%), 35 to 49 (20.7%),

and 50+ (17.6%). (Statista, 2021). Twitter users are overwhelmingly male. 56.4 percent of the platform users are men, while 43.6 percent are women. In 2020, Twitter earned \$3.72 billion. The firm has struggled to generate revenue from customers, as evidenced by the fact that 2018 and 2019 were the only years in which it posted positive net income. Twitter generated \$5 billion in 2021, a 35% increase over projections for 2020 and an improvement above the 8% and 13% growth rates of the two preceding years. Twitter's revenue for the first half of 2022 was \$1.17 billion. Advertising, data licensing, and other sources contribute significantly to the platform income of the social network. Twitter's most recent quarterly loss was 270 million dollars, compared to 513 million in 2022. According to Twitter's advertising resources, Bangladesh has 756,600 Twitter users by 2022. This figure indicates that Twitter advertisements at the time reached 0.5% of Bangladesh's population. Twitter only allows users above the age of 13, therefore it may be crucial to know 0.6% of Bangladesh's "eligible" population in 2022. ^[18]

3.2.4 YouTube

YouTube is the finest platform for sharing and marketing videos. In the previous ten years, no website has afforded us the opportunity to submit videos and instantly become famous and wealthy. Content marketing is surpassed by video marketing. According to SEMrush, YouTube expanded 4.9% per year in 2021. By 2022, the number of YouTube users in the U.S. might exceed 210 million. In 2022, there will be 2.6 billion monthly visitors to YouTube and 122 million daily visitors (Source). Every minute, 500 hours of fresh videos are uploaded, and every day, 1 billion hours of videos are seen. 53.9% of YouTube users are male, while 46.1% are female. In 2020, advertising and YouTube Premium generated \$19.7 billion in revenue. YouTube has expanded by 30 percent over the past four years. The 2021 output was \$28.8 billion, increasing 46% from the previous year. In the second half of 2022, YouTube's global ad revenue increased by 5% to \$7.34 billion USD. According to Google's advertising resources, there will be 34,500,000 YouTube users in Bangladesh in 2022. At the beginning of 2022, YouTube ads reached 20.6% of Bangladesh's population. In January 2022, 65.6% of Bangladesh's internet users saw YouTube advertisements, regardless of age. 57% of YouTube's advertising consumers were men and 42% were women. ^[19]

3.2.5 Netflix

Since 1997, Netflix has expanded in size. This platform, which began as a DVD rental service, has capitalized on the potential of a subscription-based business model to become a streaming powerhouse. According to statistics, Netflix developed the first customer choice algorithm. 221,64 million customers to Netflix in 2022. Daily content consumption averages 3.2 hours. There are 6,000 films and television shows in its U.S. collection. 65 percent of Netflix users are located outside the United States and Canada. According to studies, 52% of Netflix users are female. Due to the war, Netflix lost 0.7 million subscribers in Russia. Netflix's revenue in 2020 was \$24.9 billion, an increase of 23.8% over 2019. Over a decade, its sales have climbed. Current Netflix (TTM) revenue is \$31.03 billion. The company's 2021 revenue increased from \$24.99 billion in 2020 to \$29.69 billion.

According to BTRC and PI Strategy, Netflix has about 200,000 users in Bangladesh. A subscription costs \$8, \$9, or \$12. According to BTRC and PI Strategy, if every Bangladeshi client paid \$9 per month to Netflix, the company would get \$1.8 million per month or \$21.6 million per year. Enhanced loudness. ^[20]

3.2.6 Amazon Prime

Many foresaw Amazon Prime's success upon its 2005 launch. The service provides free shipping, expedited delivery, streaming, free Kindle books, and Prime Day specials. 80% of Amazon Prime members search and purchase products on Amazon.com.

200 million Prime subscribers were reported by Amazon in 2021. This suggests a large increase in 2019 Amazon Prime is available in a variety of countries, but its expansion has been sluggish. Approximately 50 million more Americans using the service than international clients. Amazon Prime had 153 million U.S. subscribers as of the second quarter of 2021. 124 million members paid dues last year. In 2014, forty million Americans are Prime members. This 300% increase indicates the expansion of the service. By 2022, 59% of the 76,6 million American households will be Prime members. The 2019 total was 66,4 million. As of October 2021, Amazon Prime had 23 countries. Simply said, Amazon Prime is this. In 2021, the e-commerce titan generated \$469 billion. This sum comprises sales of Prime content, physical stores, AWS services, and other services. The corporation made \$33.36 billion in the same fiscal year. Amazon offers a yearly discount for members alone. Two-day Prime Day is used to market Amazon Prime. Compared to the previous year, revenue for 2021 climbed

7.7% to \$11.9 billion. In 2021, subscriptions from Amazon generated \$32 billion. A third of Amazon Prime users spend \$50 to \$100 every month. revenues of \$116.44 billion in 2022. ^[21]

3.2.7 Online platforms during the epidemic of COVID-19

The COVID-19 pandemic and the measures taken to flatten the epidemic slope have rattled global markets, and inhabitants of all civilizations have been ordered to remain indoors.

COVID-19 has changed daily life internationally. Work-from-home policies may increase the usage of social media. Correlation and association tests constitute inference. It is possible to promote public mental health through fostering compassionate online experiences rather than condemning individuals, eliminating excessive COVID-19 discourse, and providing timely, trustworthy, and optimistic COVID-19 information. Relationships between social media use and mental health differed based on emotion regulation. Using the proper set point method might mitigate the negative correlations between social media use and mental health markers. Due to COVID-19, 1.5 billion children were absent from school as of March 29, 2020. According to UNESCO, 181 countries have adopted statewide school closures, affecting 88% of global children (2020). As schools send students home to fight COVID-19, online education and the distribution of curriculum may evolve. The pandemic demonstrates that distinct groups of persons have varying degrees of access to the tools and strategies required for success as online students or as professors teaching remotely. In 2020, the coronavirus (COVID-19) pandemic boosted online education. The 2020 pandemic education system in China was mainly dependent on online learning. 97% of college students enroll in online courses because to COVID-19. 41% of students believe their school has deteriorated since COVID-19. In 50 states, 1200 institutions and schools are affected by the pandemic. 21% of American universities employ a mixed model. 44% of institutions in the United States employ online learning tools and platforms as their primary instructional method. The coronavirus has altered global e-commerce. 52% of consumers shun crowded settings and brick-and-mortar businesses. 36% of consumers delayed buying until they were vaccinated against the coronavirus. Due to the virus's diverse impacts, COVID-19 has a greater impact on certain things than on others (Andrienko, 2020). Walmart food online sales demonstrate that due to this illness, consumers are purchasing more online, avoiding social interactions, and working from home. Facebook and Google have increased their capacity to connect more users concurrently. Facebook's Messenger service for 44 users competes with Zoom. Additionally, Google updated their version (Sarah Davis, 2020). After 20 years, e-commerce

revenues have surpassed \$800 billion. The first year of the pandemic saw a 43% increase in e-commerce sales, from \$571,2 billion in 2019 to \$815,4 billion in 2020, a total increase of \$185.6 billion. By 2023, it is anticipated that e-commerce revenues would exceed \$6.5 trillion, demonstrating COVID-19's importance (Jones, 2020). Twitter is a crucial communication tool during the coronavirus epidemic (Kullar et al., 2020). In 2019, Twitter had 330 million active users. It allows people to post tweets of 280 characters (twitter.com). From January to March 2020, more than 50 million tweets on the coronavirus epidemic were sent globally. (Chen et al., 2020). According to Kullar et al., Twitter is the most prominent social media tool for disseminating information on infectious diseases (2020). It enables the sharing of scientific conferences and disease-related instructional materials in real time, allowing people from all over the world to follow updates and debate health problems with professionals. This study examines the most recent and representative public impressions of the pandemic via Twitter. During the COVID-19 pandemic, online platforms for information-seeking, "working from home," and doing business gained popularity, hence boosting E/F-commerce. People in Bangladesh rely on social media to learn about the Covid-19 outbreak, prevention measures, testing, and treatment because healthcare services are substandard. To increase the utility of social media for customers, a technique must be developed to filter out false information. ^[22]

Bangladesh uses media to enhance health communication seldom. The Bangladeshi government and health program partners launched Shabuj Chaya to encourage behavior modification. Bangladesh will cease operations on March 26, 2020. All academic institutions transitioned quickly from in-person to online activities. This unforeseen virus infected 36 million pre-kindergarten through college students. Originally, Bangladesh Television (BTV) showed "My School at My Home" for grades 6–10. Despite Bangladesh's several problems, the current study highlights the elements that impede university students' acceptance and e-learning enjoyment during the Covid-19 crisis. According to Statista, Bangladeshi e-commerce has surpassed \$1.5 billion and is projected to reach \$2 billion this year and \$3 billion by 2023. As large crowds in restaurants and shopping malls pose health risks, people are purchasing their favorite items online from the comfort of their own homes. The Internet is used to purchase food, clothing, and medications. Despite the fact that economically disadvantaged and lower-middle-income families are market-oriented, middle- and upper-middle-class individuals are increasingly shopping online.

3.3 Statistical Analysis

In July 2022, 4.70 billion individuals will be utilizing internet platforms. It indicates that almost 94% of customers currently utilize social networks on a regular basis, which corresponds to 59% of the worldwide population. The data below represent the growth of the online education market in various nations. From around \$250 billion in 2020 to \$1 trillion in 2027, the global eLearning industry is expected to treble in size. In 2020, the market witnessed a record-breaking growth rate of 36.3%, and it is expected to increase at a CAGR of more than 21% through 2027. While the COVID-19 pandemic is a big contribution to this increase, other factors such as rising demand in developing countries and the spread of mobile learning are also relevant. [23]

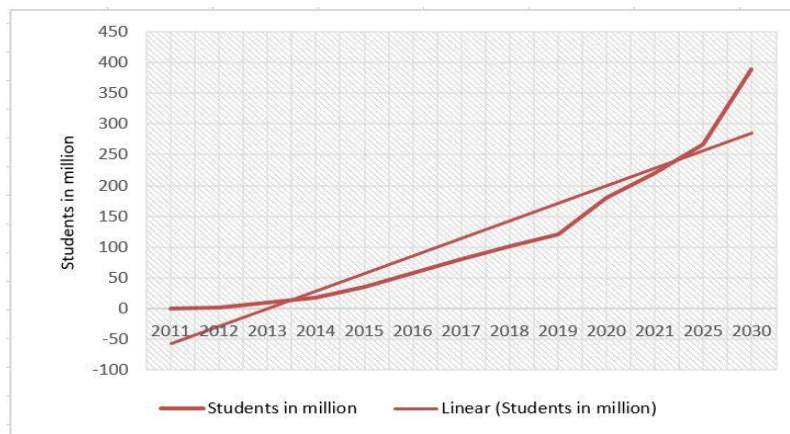


Fig 3.2: Online education (MOOC) growth

Following the onset of the COVID-19 pandemic, the education system in Bangladesh underwent a drastic upheaval beginning in March 2020, as it did in the majority of other nations. Bangladesh is likewise pursuing the integration of ICT into its educational system. There is no question that delivering lessons online is a good approach for the government to assist students in keeping up with homework and not missing extracurricular activities.

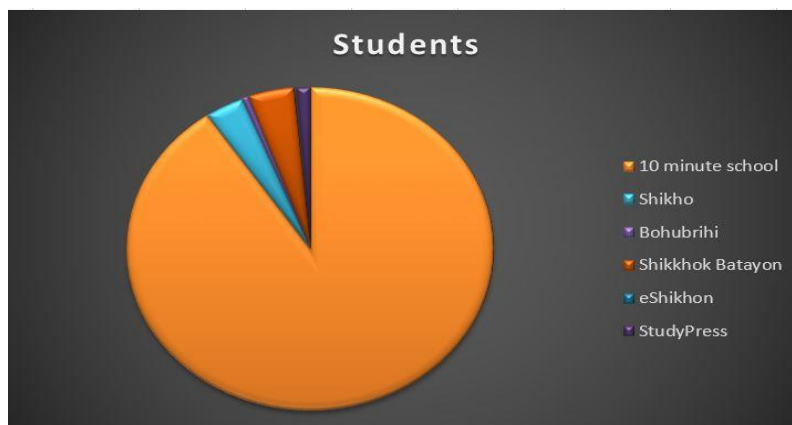


Fig 3.3: Online Education in Bangladesh for Students

The COVID-19 international e-commerce boom was initially created out of necessity. As establishments closed and shoppers stayed home to avoid the disease, internet shopping provided a valuable alternative. The share of global e-commerce to total retail sales will climb from 15% in 2019 to 21% in 2021. It presently accounts for around 22% of sales.

In contrast to its origins, the current trend in the e-commerce business has expanded in a variety of ways. It is expected that the internet market share would reach 27% by 2025 and 33% by 2030, up from 18% in 2020–2023. Mobile commerce and personalization are two of the most significant innovations for online businesses as e-commerce increases and evolves.

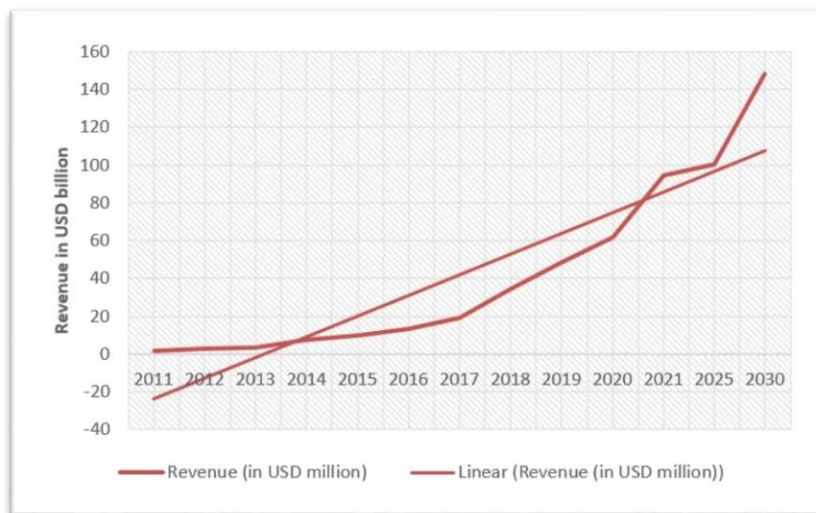


Fig 3.4: Increase in the E-commerce (Alibaba) market

Bangladesh's e-commerce sector has grown during the past four to five years for a variety of reasons. The e-commerce market had a meteoric rise in 2017 with a 70% increase over 2016. In 2017, the B2C ecommerce market was worth between USD 110 and USD 115 million (about BDT 900 crores), compared to the whole retail market's value of BDT 133,571 crores.

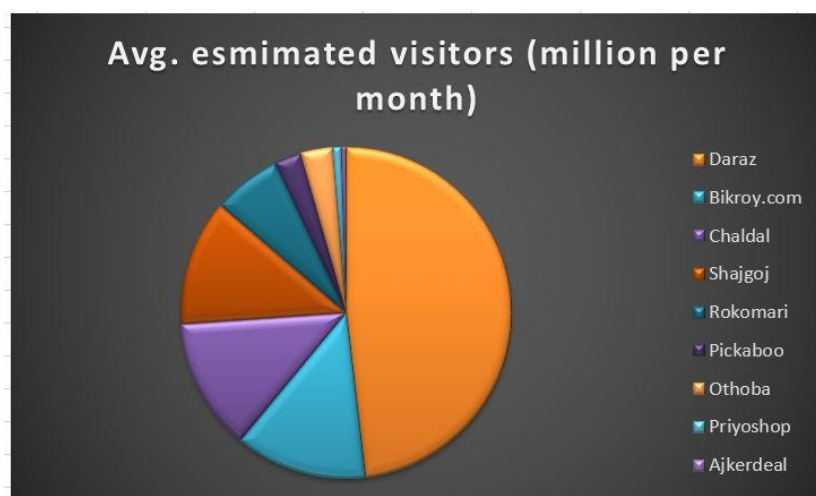


Fig 3.5: Internet trading in Bangladesh

eMarketer predicted that Twitter will grow by 2.8% in 2020, but the epidemic altered everything. As a result, in October they dramatically upped their initial projection for 2020 to 8.4% growth. [24]

According to eMarketer, the number of Twitter users is expected to increase by 2% in 2022, then decline somewhat in 2023 and 2024, before increasing by 1.8% in 2025 and 1.6% in 2026. According to a survey by Market Research Future, the IPTV market will reach 194.21 billion US dollars by 2030, expanding at a compound annual growth rate of 18.96%. The global video streaming industry was predicted to be valued 59.14 billion US dollars in 2021. This market is anticipated to expand at a compound annual growth rate (CAGR) of 21.3% between 2022 and 2030. [25]

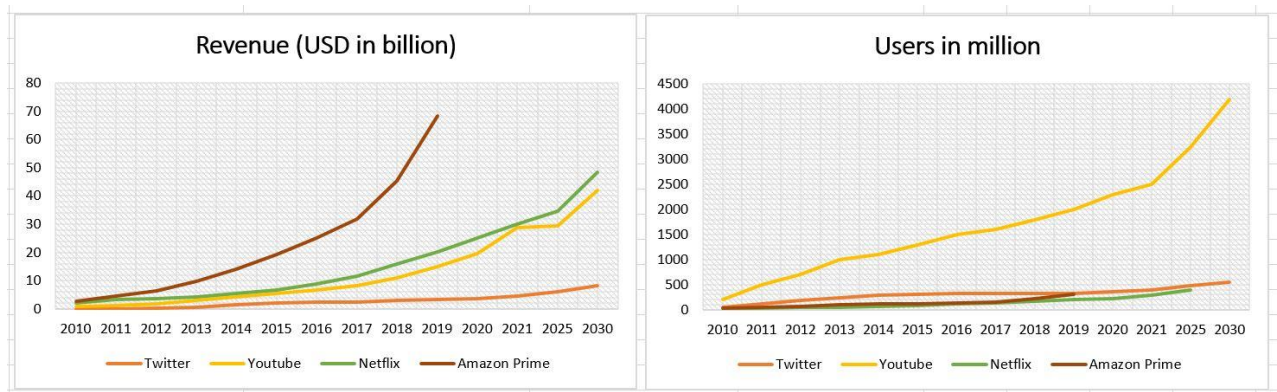
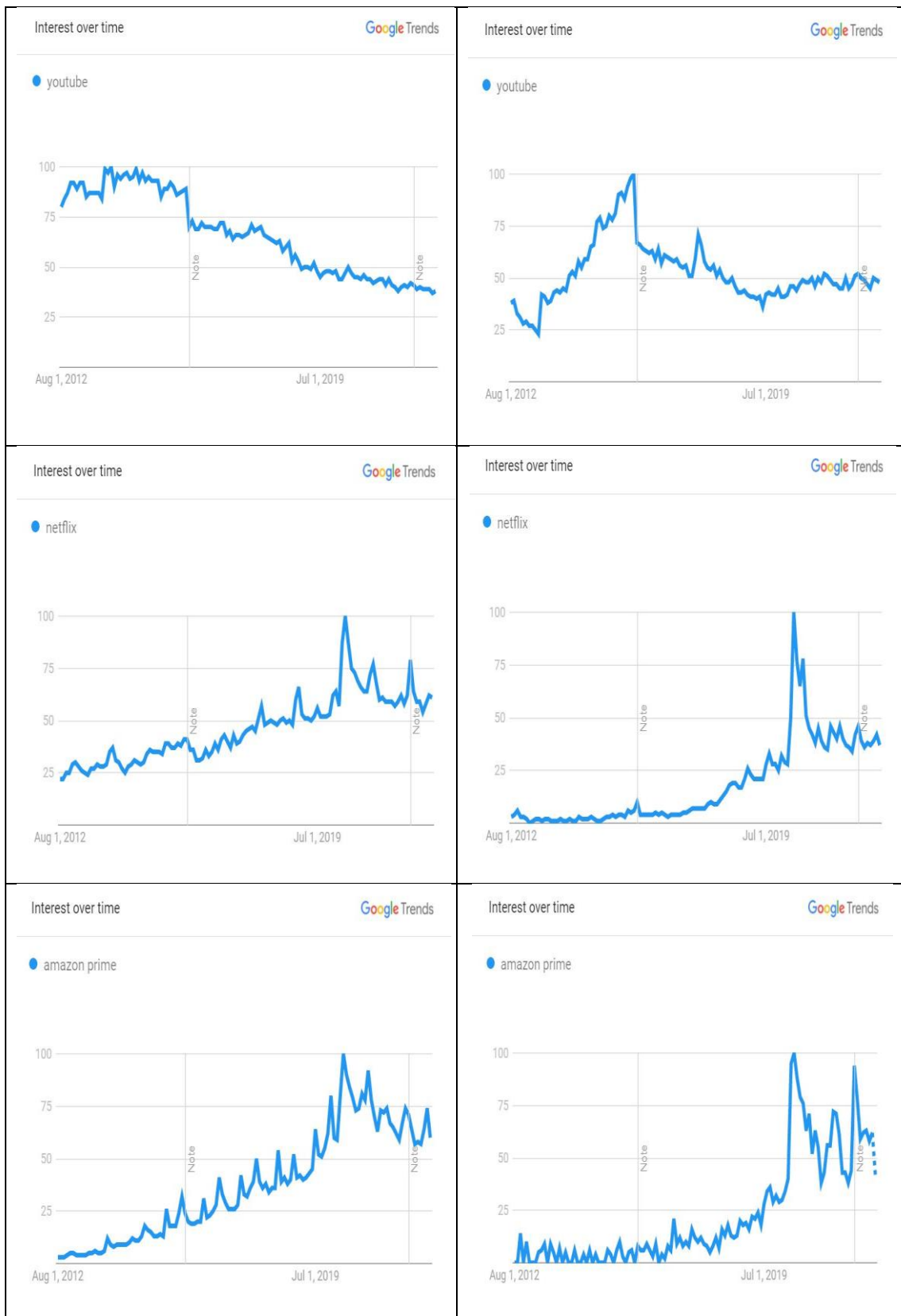


Fig 3.6: The expansion of social media platforms' revenue and user bases.

Table 1: View of Google Trends in accordance with online education, e-commerce, Twitter, YouTube, Netflix, and Amazon Prime.

Worldwide	Bangladesh
<p>Interest over time Google Trends</p> <p>● online education</p> <p>Aug 1, 2012 Jul 1, 2019</p>	<p>Interest over time Google Trends</p> <p>● online education</p> <p>Aug 1, 2012 Jul 1, 2019</p>
<p>Interest over time Google Trends</p> <p>● eCommerce</p> <p>Aug 1, 2012 Jul 1, 2019</p>	<p>Interest over time Google Trends</p> <p>● eCommerce</p> <p>Aug 1, 2012 Jul 1, 2019</p>
<p>Interest over time Google Trends</p> <p>● twitter</p> <p>Aug 1, 2012 Jul 1, 2019</p>	<p>Interest over time Google Trends</p> <p>● twitter</p> <p>Aug 1, 2012 Jul 1, 2019</p>



Ten years ago, social media would have been unimaginable. A once-simple application is now capable of e-commerce, gaming, and live streaming. Search will lose its dominance over product research by 2030, but social media will rise, particularly among mobile-first shoppers and developing nations. By 2020, according to Facebook, 80% of smartphone users will utilize a messaging app.

3.4 Proposed Methodology

In contemporary life, the significance of online platforms cannot be overstated. A recent study concluded that internet platforms are an essential component of all platforms. The amount of time we spend on social media platforms has far-reaching implications for the content of these platforms.

This research was conducted in order to conduct a trend analysis of online platforms over the past several years. In order to achieve this objective, data from various sources was compiled and analyzed. Following that, a statistical analysis was conducted using Microsoft Excel.

3.5 Implementation Requirements

Statistical and historical techniques have been used to the dataset during the duration of the inquiry. After then, a detailed description of internet platforms will be made available to the public. After that, there will be an explanation of the Internet.

CHAPTER 4

EXPERIMENTAL RESULTS AND DISCUSSION

4.1 Experimental Setup

The relevant research does not involve any experiments.

4.2 Experimental Results & Analysis

Social media use is increasing. It's ascending. In 2021, 4.26 billion people utilized social media; by 2027, 6 billion are anticipated. The global market for video streaming will expand at a CAGR of 21.3% between 2022 and 2030. Since 1996, fifty percent of the global population has utilized social media. Users of social media increased from 970 million in 2010 to 4.48 billion in 2021, a tripling. Annual growth in new users slows. It is dependent upon cell phones and Internet access, particularly in developing countries. By 2021, there will be 4.48 billion social media users worldwide, each of whom will visit 6.6 platforms each month. This is 13.13 percent greater than the 2020 forecast. Use of social media is 56.6%. 93.3 percent of the world's 4.8 billion internet users and 85 percent of its 5.27 billion mobile phone users use social media. In 2015, there were 2.07 billion users, an increase of 115.59 percent from 2010. The number of individuals who visited digital media websites increased from 2.078 billion in 2015 to 2.307 billion in 2016, 2.79 billion in 2017, 3.196 billion in 2018, 3.484 billion in 2019, 3.960 billion in 2020, and 4.480 billion in 2021. The value of online trading platforms is projected to increase by 6.4% per year, from \$9.6 billion in 2021 to \$10.21 billion in 2022.

COVID-19 altered the lives of millions of people and caused a health, economic, and cultural catastrophe. Pandemics have an impact on daily activities and tools such as social media. In 2021, the number of monthly active users on all major social networks increased compared to 2019. By billions of people staying at home, socially isolating themselves, and locking themselves up. Individuals use social media to socialize and watch entertaining videos. From July 2019 to July 2020, Internet usage increased by 10.5%. Four months after the initial COVID-19 lockdown, a study conducted in July determined why consumers use social media and other connected devices. Eighty-three percent of respondents stated that it "helps me cope with COVID-19 imprisonment." In addition to studying, maintaining social connections, and working, the most common responses were also to be found. During the pandemic, social media played a crucial role. After the pandemic, many businesses and schools adopted a virtual presence. It facilitated e-learning. COVID-19 increased e-commerce by providing

customers with a new choice. After the tragedy, COVID-19 expanded e-commerce to meet the needs of its customers. In 2019, 3.4 billion social media users rose to 3.78 billion in 2021. As lockdowns began, individuals searched for alternative channels. Global users increased by 5% in 2019. According to a 2022 survey, 4.65 billion people use social media. The of social media is 587.0%. New social media platforms and applications are developed for global clients. Popular are live streaming and audio-based social networking. Live video streaming was the second most expensive social media trend in 2016 (32%). 52% of social media marketers stated in a survey that streaming exceeded their expectations. Technology and virtual marketplaces have facilitated online shopping. By 2025, e-commerce could be worth \$11 trillion. COVID-19 accelerated the globalization of digitization as more businesses went online. As regions reopen, e-commerce grows. Global e-commerce sales could surpass \$6 trillion by 2024. The difference between historical and predicted results is substantial. The epidemic increased the use of Twitter by 1.5% in 2019, 11% in 2020, and 4% in 2021. An analyst anticipates 20 million Twitter users by 2026. Asia-Pacific and Europe will experience the greatest growth. There will be 2.24 billion YouTube users in 2021. By 2025, there could be 2.85 billion users on YouTube.

4.3 Discussion

The invasion of social media into the real world has caused harm to a number of individuals. When individuals log in to their social media accounts, they enter the virtual world. Real and virtual worlds compete to be the most common means of human interaction and communication. Charles Kline's ideas spawned a counterculture that spread throughout the mainstream world. The significance of social media can be gleaned from its regulatory effect on development, self-perception, interpersonal relationships, and business. This highlights the value of social media. Virtually all face-to-face communication and interaction has been supplanted by social networks. Teens who begin using this mode of communication at a young age are more likely to lack social skills because they cannot have a meaningful conversation unless the other party uses a monitor to guide the conversation. Children are constantly exposed to images and ideas of the ideal individual, which prevents them from recognizing the positive qualities they already possess. Some individuals lack the ability to maintain relationships with others in the real world. When businesses use this medium for advertising, they risk falling behind in the near future. The pervasiveness of social media in people's lives has an effect on the surrounding environment. Even if an individual does not use social media, they are likely to be surrounded by individuals who do. They will

eventually encounter the same difficulties as everyone else. Satellite communications have contributed to the globalization of culture by preventing the transmission of face-to-face signals. Virtually every aspect of our lives is affected by social media. Individual interaction will become obsolete as a result of prevailing trends. In order to restore social cohesion, social media must be regulated in a manner that reduces negative effects while amplifying positive ones.

CHAPTER 5

IMPACT ON SOCIETY, ENVIRONMENT, AND SUSTAINABILITY

5.1 Impact on Society

Since the beginning of the 21st century, the number of online platforms has expanded exponentially. They are effective and potent. How we approach business, academia, employment, politics, and other fields is influenced by online platforms. Long-term, severe effects of excessive use on psychological health.

Online platforms' benefits:

Popularity of social media platforms for human connection has increased. It assists folks who are unable to migrate or travel to meet others. It is the most economical approach to stay in touch with everyone. Social programs allow us to exchange inexpensive text messages, photographs, and video chats. We find it simple and expedient to resolve educational challenges. It makes no difference what we are researching. Students seek assistance via social media. Some individuals seek knowledge, others investigate novel concepts, while yet others invent original solutions. Social media can assist instructors in developing innovative instructional practices. Social media may boost the weakest voices in the globe. Social media cannot conceal misconduct. Social media posts emphasize mistakes. Using social media, individuals may express their opinions, advocate for change, and seek justice. Social networking can increase charitable giving. Social media assists non-governmental organizations in showcasing their work, interacting with supporters, and recruiting new sponsors. Social media is utilized by businesses for product promotion and consumer loyalty. Customer interactions and feedback help businesses comprehend the industry and enhance their products and strategies. To motivate individuals to check their social media sites, businesses host contests and offer rewards. Social media presence is less expensive and more successful than television advertisements and other marketing strategies.

Negative online consequences:

Social media negatively impacts both physical and emotional health. They can alter your perspective and sense of self. Ironically, the lack of face-to-face interaction on the Internet is a drawback. Many individuals prefer the Internet to conventional forms of communication. The excessive use of social media may impair one's mood. Substance abusers are more likely to develop anxiety and despondency. Why is evident. Social media makes it easier to

compare individuals, which generates anxiety. Cyberbullying is the transmission, publication, or dissemination of unwanted, damaging, or malicious information. It may include disclosing private or sensitive information about another person to their shame. Cyberattacks can cause severe psychological trauma and even suicide. Cyberbullying also damages grownups. Online, adults may be victimized. Social media is more addicting than cigarettes and alcohol. Some persons become nervous when they cannot utilize social media. This is known as social media anxiety by therapists. Social media platforms facilitate communication and informational need. Social media marketing will eventually be the only business method available. The social media landscape has two sides. We must use it to live profitably and prudently. ^[26]

5.2 Impact on Environment

A website supports environmental projects and connects local and global climate change groups. It also enables regular citizens to monitor the water and air quality in their neighborhoods and share the collected data. Each semester, virtual education decreases CO2 emissions by 148 pounds. Measuring the impacts of streaming and internet use is challenging due to customer ignorance. There are four fundamental stages when assessing the internet's environmental impact. Data centers consume around 1% of global electricity and produce 0.3% of global CO2 emissions. The key emissions for streaming services are server electricity and cooling. Layers 3 and 4 are customizable, but server consumption is not. Every hour of TV viewing on 3G creates 90 grams of CO2, compared to 13 grams for LTE, 5 grams for 5G, and 2 grams for Wi-Fi. Even with improved cell networks, Wi-Fi can reduce streaming emissions by 50 percent. Streaming gadgets influence emissions as well. Smaller screens have a diminished effect. A laptop consumes three times as much energy as a 50-inch television. Layer 4's benefits are maximized when devices are used for as long as feasible, despite the fact that 80 percent of smartphone emissions occur before they leave the manufacturer. ^[27]

5.3 Ethical Aspects

This study poses no risk of psychological, social, physical, or legal damage. Unethical activity is unacceptable in the realm of study. This study does not contain any instances of abuse, racism, or ableism, and the data from the studies conducted by other researchers are appropriately mentioned.

5.4 Sustainability Plan

The modern era advances at a dizzying pace. We require rapid access to all information. Despite the current popularity of online platforms, the associated information is not hosted on the same website as the platform. Compiling a large amount of material from several online platforms into a single piece of writing might prove to be a really intriguing and original approach in this situation.

CHAPTER 6

SUMMARY, CONCLUSION, RECOMMENDATION, AND IMPLICATION FOR FUTURE RESEARCH

6.1 Summary of the Study

Internet-based platforms are used to organize and advance teaching and learning activities. As more of our personal, professional, and educational interactions occur online, our dependence on these platforms grows. We use these platforms for news and entertainment, communication, self-expression, content production and consumption, job searching, public transportation, and housing. Since more of our personal, professional, and educational interactions are online, we rely on these platforms. We use these platforms for news and entertainment, networking and communication, self-expression, the creation and consumption of content, job seeking, public transportation, and housing. Since 1996, half of the 7.7 billion people in the globe have accessed social media. The number of users on social network platforms than tripled from 970 million in 2010 to 4.48 billion in July 2021. The annual pace of new users is decreasing. Social media is utilized by 93.33 percent of the world's 4.8 billion internet users and 85 percent of its 5.27 billion mobile phone users. Six-year expansion of online media outlets The number of active users increased from 2.078 billion in 2015 to 2.307 billion in 2016, 2.79 billion in 2017, 3.196 billion in 2018, 3.484 billion in 2019, 3.960 billion in 2020, and 4.480 billion in 2021. The epidemic affects daily activities and the functionality of platforms like as social media. In 2021, all major social media platforms will have more monthly active users than in 2019. Despite the fact that billions of people are spending more time at home, they are becoming more socially isolated and searching for ways to stay in touch despite lockdowns. There were 4.26 billion social media users in 2021. There may be 6 billion users by 2027. The global market for video streaming, which was valued at 59.14 billion US dollars in 2021, is anticipated to expand by 21.3% between 2022 and 2030.

6.2 Conclusions

Many families may get benefits and adopt new behaviors as a result of internet-based initiatives. Due to their laboriously better appearance for our savings and institutions, internet floors have drawn a large number of tens of thousands or even millions of customers, becoming the ruling class ultimate standard websites worldwide. Free contemporary Internet patios include social publishing, content-sharing policies, traveling usage, idea tactics, and online travel and reconciliation policies. Mathematical advancements have altered current monetary practices and every area of life. Over the past two decades, the value of frugality has grown internationally. 66 billion in 2019, rising to 350 billion by 2025. In 2021, 26 billion individuals will purchase used books, and by 2027, six billion will do so. Total savings have existed forever for one COVID-19 universal and measures to straighten the pandemic slope, and institutions around the globe are in isolation, with residents required to observe the friendly distance and wait at home. As a matter of fact, the pandemic reaches its zenith in the manner in which various groups of individuals take diverse approaches to the purposes and objectives they must attain as online learners or as teachers who are expected to connect remotely. 21% of U.S. academies employ hybrid educational methods. 4 billion by 2020, the first year of the universal age, according to 2020 ARTS, a rise of \$244. Twitter has become an indispensable source of ideas in the coronavirus struggle. Prior friendly network principles have increased the number of consumers they have from 970 heaps in 2010 to 4. 48 billion consumers of friendly publishing platforms by 2021, helping each bureaucracy achieve an average of 6. 07 billion consumers in 2015, an increase of 115.5% in the number of living consumers. from 4. There is a steady emergence of new news platforms and applications that draw users from across the world. According to the survey, individuals can no longer exist without online platforms since they have undergone a radical transformation and been impacted by the pandemic over the past decade.

6.3 Implication for Further Study

In both our personal and professional life, people depend on internet-connected applications for a variety of tasks. Their strength is in our capacity to trade products and services, connect to the internet, conduct research, and cooperate. They use bureaucracy for amusement, information, transport, housing, employee involvement, decision services, and location applications. However, bureaucracy's deals may be more complicated than they appear. This

handbook on internet platforms will prove useful for future research. The novel discoveries require more investigation.

This paper's information is drawn from scholarly articles, journals, websites, and other sources. There are several relevant data sources as opposed to simply one. This paper will illustrate the evolution of social media platforms during the previous decade and during COVID-19.

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