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The impact of giants tech on media industries in digital economy pre- and post-COVID-19 pandemic

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Abstract---Information and communications technologies have facilitated the emergence of companies like Google (Alphabet), Amazon, Facebook (Meta), Apple or Microsoft (GAFAM), which represent business ecosystems. They compete amid themselves through communications and entertainment groups. At the same time, their capacity to manage big data makes unlimited growth possible, towards any activity that involves large quantities of data these companies are characterized within their respective markets. This article examine on 5 giants tech by analysis the characteristics of giants tech, the expansive growth before and after Covid-19 pandemic, the risk and threat to democracy, business model and ecosystem competitive which allows us to assess their impact on the media.

Keywords---GAFAM, entertainment group, communication technology.

Introduction

Online media platforms have continued to grow over the last two decades. The major players of the online media include Google, Amazon, Facebook, Apple, and Microsoft. These leading media houses are popularly known as the GAFAM (Florida, 2012). Of all these media channels, Google is the most prolific. It is a global library that offers answers to every question that human being has. The GAFAM online media houses have overtaken the mainstream media houses by taking all the duties expected of them. For example, advertising over the Google or Facebook would reach more globally than advertising through media houses, such as the BBC and CNN among others. Giant's tech media plays a major role in the digital economy era. Digital economy entails conducting businesses through the Internet. These functions include online advertisements and the sale of goods and services. The GAFAM have a global coverage and plays these functions at a global level. In the past, mainstream media houses, including radio, television, and newspapers, controlled most of the advertisements and had the largest share of income from this service. Today, the GAFAM shares a majority of online advertisements and sales. As Internet infrastructure continues to expand, so is the online global society. This expansion creates a conducive ground for the growth and development of GAFAM industries.

Secondly, the GAFAM media has great dominance in the transmission of information. Expanding online society rarely seeks answers from mainstream media houses. Rather, they rely on online media houses, such as the Google and Facebook. For example, students find it easier to use online libraries and databases when conducting research rather than visiting physical university libraries. This is because of the portability nature and the ease of access that characterizes online database (Panzarino, 2018). It is also easier for companies to inform their customers about changes that occur in their administration, production and distribution of goods through social media than broadcasting through television, radio and newspapers. Companies and websites where consumer come in and search for the information they need. Mainstream media houses also use Facebook to make live broadcasts so that they can reach more people rather than relying on satellite transmission.

Lastly, GAFAM technologies play important role in communication. Communication is the art of sending and receiving information. GAFAM has improved communication globally. These companies are utilized by the online global community interchangeably to promote communication between themselves (Sharma, 2018). The use of telephone calls has greatly reduced as online audio calls have become cheaper, especially when making international calls. Also, video-calls have become a major tool in communication as the GAFAM companies have improvised ways to make these calls cheaper.

It is important to note the role of giants' tech in the entertainment industry. The GAFAM has greatly impacted the players in media entertainment. In the past, it required a lot of work for a musician and visual artists to get noticed around their village and globally (Panzarino, 2018). Today, an artist requires to have an online account with some of these media to get noticed around the world. Therefore, they get to widen their territories as well as revenue from their work within a short

time. The GAFAM offers several platforms through which the entertainment companies can collect music from around the world and sell them to the global society. A musician only requires to sign up with the platforms and submit an original piece of art. The company will make online advertisements, and viewers would see the product and buy it through online transactions. After that, the company will remit revenue to the artist according to the agreement between them. The main objective is to overview the impact of GAFAM on the media industries based on the identification of their characteristics and the impact within the context of the digital economy.

Characteristics of Giant Tech Companies

Internet economic giants compete in a unique way. They all depend on the Internet to sell their products. Although, they are interdependent in the market each of them uses specific way to reach their clients. One of the examples of mutual interdependency can be traced to how to google work. It is possible to access the services of Facebook, Amazon, and Apple just by creating an account in Google. However, Google can advertise its products through Facebook and sell them through Amazon (Ourand & Smith, 2018). This implies that all these giant online companies are interdependent. Also, these online companies have unique ways through which they make their services attractive to the buyers. For example, the Apple Company produces iPhones that do not support applications from Google. On the other hand, the two companies offer YouTube services to their customers (Resnikoff, 2018). This means that the YouTube Company has to develop an application is only supported by Google and another unique application that is only supported by iPhone. Amazon, on the other hand, offers unique entertainment services on premium terms. These services can be offered through google or Apple companies.

Table 1
GAFAM services related to the digital economy

e-commerce	B2B		Alphabet Inc.	Apple Inc.	Facebook Inc.	Amazon.com Inc.	Microsoft Corp.
		Artificial Intelligence	Deepmind, TensorFlow	Caffe	Facebook AI Research	Amazon AI	Microsoft Artificial Intelligence Program
		Influencer		Apple Business Manager	Influencer	Amazon Business Amazon Web Services	Ooyala
	B2C	App store	Google Play	App Store	-	Amazon App Store	Windows Store
P2P commerce	Payments/Wallets		Android Pay, Google Wallet	Apple Pay, Apple Wallet	Facebook Payments	Amazon Pay, Amazon Wallet	Windows Wallet
		Shopping	GoogleShopping	iTunes Apple Music	-	Amazon.com	Microsoft Store
Digital media	Direct sales digital media Free	Social	Google+	-	Facebook,	Goodreads(books)	LinkedIn

digital media	networking			Instagram		(2016)
	Video aggregation /Live video	YouTube, YouTube Live	Clips (video editing for posting on other platforms)	Live (2015), Videos, 360 Videos	Amazon Prime Video	Microsoft Stream
	Entertainment: music, movies, eBooks, games	Google Play Stream Project	iTunes	Games	Amazon Music Kindle Twitch	Windows Store Project xCloud
	Online advertising	AdWords, AdSense Analytics, Admob, DoubleClick, AdExchange Tag Manager	iAd	In NewsFeed Audience Network	AmazonAdvertising	Bing Ads, Bing Network
	Local directory	Google	Apple Maps	Places, Pages	-	Bing Places for Business
	News	Google News, Google AMP	Apple News	NewsFeed, Instant Articles	-	Linked-In
Big data	Number of users/accounts	40.000 searches/second 1.000 M of hours /day (YouTube)	588 M credit cards accounts 1.300 M of iPhones	2.200 M of monthly active users 1.200 M of Messengers users	100 M of Prime Amazon users	1.200 M of Windows users

Source: J C Miguel de Bustos, (2019)

Expansive Growth

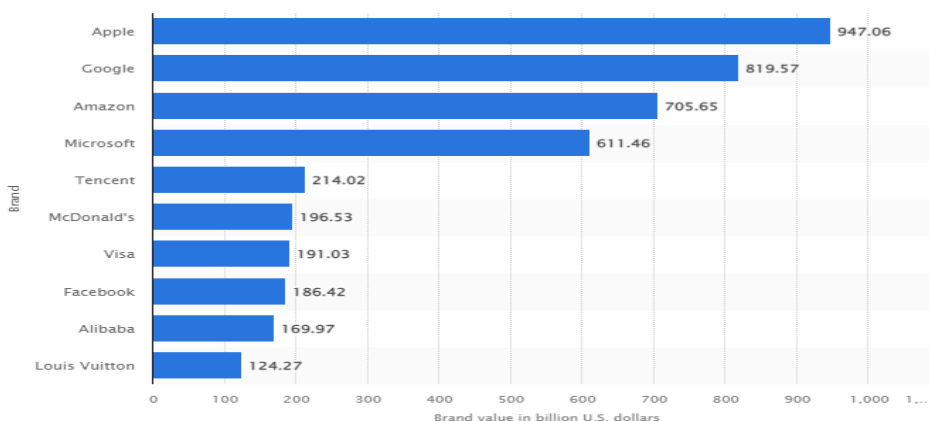
The GAFAM companies are characterized by their expansive growth. As the world continues expanding the internet coverage, these companies are coming up with other unique services to offer to the expanding markets. They are, therefore, characteristics by their continued acquisition of the upcoming online platforms. These companies make deals with other upcoming platforms so that they can sell their services under these giants. The upcoming online enterprises do not have the economic power to compete with the GAFAM (Mosco, 2018). Therefore, they readily accept to work under their conditions. For example, the WhatsApp application has been growing for over the last few years. Facebook has seen the potential that WhatsApp has and has acquired it. In fact, the new WhatsApp messenger is rebranded with a “From Facebook” icon to show the world that it is now a Facebook property.



Figure 1. Price return performance of giants' tech
Source: Zack Investment Research, (2021)

Heading into early 2020, the [Nasdaq 100 index](#) was rising same as GAFAM. Facebook was the first one to break lower, peaking in late January 2020. The other GAFAM stocks and the Nasdaq 100 continued to advance. Also, these giant online platforms have the biggest shares in the leading stock markets. In terms of Million Dollars' worth, Google has 685,730; Apple has 810,000, Facebook 443,700, amazon 483,000, and Microsoft 559,000. These are huge amounts of money invested in the stock market operations. Other upcoming companies would find it difficult to compete with these technological companies.

Table 2
Global leading brand in 2022 by brand value (in USD)



Source: Statista, (2022)

In terms of market value, the largest tech company among Google, Amazon, Facebook, Apple, and Microsoft is Apple Inc., with a current market value of \$3 trillion. Apple made history in 2018 by becoming the first company to hit trillion dollars before it was followed by other companies such as Microsoft. This achievement was facilitated by Apple's share price, which hit \$182.26, which is a sign of tripled valuation in four years. This also doesn't come as a surprise

because the company has been expanding its operation in various countries, and it now operates in 25 countries with a total of 519 stores (*"Largest tech companies by market cap,"* n.d.). Such expansion gives the company the upper hand to market its products in various regions, reaping the sales from the target customers. According to García-Sánchez et al. (2018), Apple has also been increasing the number of employees yearly, which is equated to the expansion of its operations. For example, Apple had a total of 147000 employees in 2020, an increase of 4.76% in 2021 to 154000. It, therefore, becomes visible here that Apple Inc. was barely affected by the covid-19 pandemic. It is known they Covid-19 affected its revenue distribution but not to the worst levels. Some of the stores were closed, and its supply chain was disrupted, but 2020 to Apple was an outstanding fiscal year in which a double in stock was recorded. During post-Covid-19, particularly 2021, Apple a record by selling \$9.03 billion in Macs; iPad also increased by 31% in the last quarter of 2021, and in the last month of 2021, only iPad as ales worth \$7.4 billion was made which was a record increased \$1 billion compared to the same period in 2020 (Birch & Cochrane, 2022).

The second-largest company is Microsoft, a company that had been dominating the world of computers even though it faded from the forefront recently. Still, it returned with cloud computing services, gave it the upper hand, and became among the top companies in terms of market share. Microsoft is one of the only companies with more than a \$2 trillion market share globally, with its market share currently standing at \$2.3 trillion (CompaniesMarketCap, n.d.). In the first quarter of 2022, the company stock was recorded at \$302.28, which is fair compared to its target of \$370.72. Despite the outbreak of covid-19, the financial operations of Microsoft were not adversely affected, and the company was able to increase its revenues. For instance, it made \$143.015 billion in 2019, \$168.088 billion in 2020, an increase of 17.53%, and in 2021, it made a total of \$192.557 billion, an increase of 20.37%. The first quarter of 2022 showed an increase in revenues by 18.35% compared to the same period in 2021, implying that the company was barely affected by the covid-19 pandemic (Vanian, 2020).

The third-largest company in the named list is Google Company with a current market cap of \$1.92. Johnston (2020) reports that the company currently is \$88.73 billion. In 2020, the company made earnings of \$48.21 billion, something that it has risen after the covid-19 pandemic. In 2021, the company made \$91.08 billion. Google operates in 219 countries across the globe and is one of the top companies in the United States operating in many countries. Google search engine is one of the products used mainly by Google customers, given that most android mobile devices have Google as a default search engine. In 2021, the total number of employees in the company was 156500, an increase of 15.67% from 2020. Fourth is Amazon, with a market value of \$1.114 trillion. It is the largest online company operating in 58 countries and reaching over one billion populations. It is the leading e-commerce in India, Western Europe, and North America. However, the 2022 or post covid-19 financial status was disappointing because the company made losses for the first time since 2015 as its stock dropped by 12%. The company recorded a net loss of \$3.8 billion or \$7.56 billion share due to writing off its investment in Rivian, its electric vehicle manufacturer. In 2020, the company projected 13% growth in term revenues to \$3.8 trillion from the \$30 trillion global retail markets. In 2019, the company recorded a 40%

increase in sales compared to 2018 (*"Largest tech companies by market cap,"* n.d.). In terms of employees, Amazon has a total of 1.1 million in the US in 2022 compared to 93500 in 2021.

Lastly, Facebook (Meta) has a market capitalization of \$562.19 billion. It operates in 167 countries, having three billion active users monthly. Facebook has 82 offices worldwide created by the 3,142 jobs that a total of 44,942 full-time employees have occupied. In terms of revenue status, before and affect the covid-19 pandemic, the company made cross revenues of 70,697 and 85,965 in 2019 and 2020, respectively, implying that the company was doing well and the increase in annual revenues was being recorded (Feiner, 2022). The company was recently renamed Meta from Facebook, the initial name, and in post-Covid-19 financial operation is not pleasing as in the first quarter of 2022, the company failed to meet the expectation of \$30.15 billion and collected \$27 billion instead. This suggested a slower growth than expected as it averages 3% out of 11%. This is attributed to privacy changes to iOS and the economic challenges of covid-19. The company also attributes this to inflation, which is higher in some parts of its market countries, and the supply chain issues that have affected the budgets of its advertisers (*"Largest tech companies by market cap,"* n.d.). Also, Facebook uses have shifted to the products that generate fewer revenues, for example, the case of Reel videos that many people are spending time in instead of the revenue-generating news feed.

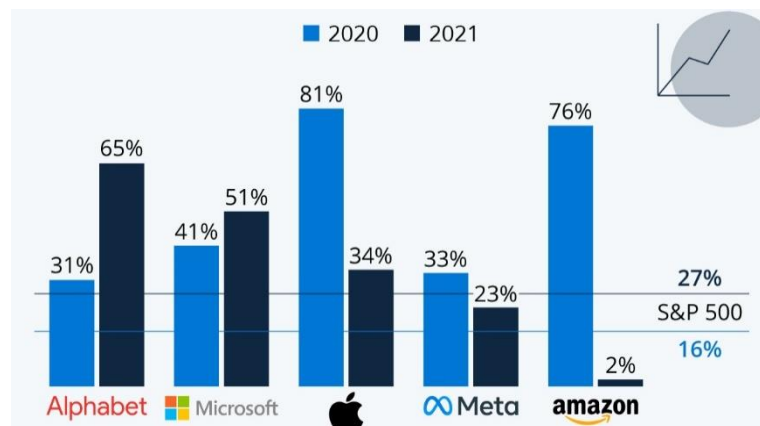


Figure 3. Giants tech stock price during pandemic
Source: Statista, (2022)

GAFAM are characterized by their huge shares in the stock market. Their huge shares are attributed to their market share and their income. Google and Facebook mainly depend on the advertisement. 90% of Google's income comes from advertisement, while Facebook revenue from advertisements accounts for 71% of their total income (Molla, 2018). On the other hand, Microsoft, Apple, and Amazon do not have huge incomes from advertisements. Their revenues are accrued from the sale of different products. In terms of revenue/employee ratio, Apple has the highest ratio followed by Google then Facebook. This implies that Apple has a better output per employee, when compared with the others. These statistics implies that the GAFAM companies are good at accumulating capital from their workers. Therefore, they offer their shares to the stock market to

improve their market performance and continue accumulating new markets globally.

Business Models of GAFAM

Each of the GAFAM media deals with a specific business model. A business model is rational that tells how a company creates, delivers, and captures in the economic, social, and cultural contexts. Looking at the business model of the five companies, we can say that they derive their economic value from advertisements and subscriptions (Walton, 2012). Google and Facebook specialize in advertisements. This means that their customers identify them as the best advertisement platforms. Google revenues from advertisements stand at 85% of the total revenue, while Facebook accounts for 95%. When advertising a product through Google and Facebook, you are guaranteed to reaching customers from around the world or your desired geographic area. Also, Facebook and Google allow their customers to target a specific group that constitutes their consumer base. For example, when advertising through Facebook, you can choose about the age, geographical area, and the occupation of your target customers. This implies that the two platforms have the best search for the target customers. On the other hand, Amazon, Apple, and Microsoft derive most of their revenues from sales and subscription. Meaning the sales of products characterize their business model. For example, Apple, Amazon, and Microsoft revenues on sales stand at 96%, 99%, and 93% respectively. Some of the products sold by these companies include software, entertainment, and a different range of other products.

Further aspect of the giant tech is that they depend on the electronic economy. This means that all their transactions are done on an online platform through electronic money. Although we have dangers of cyber-crimes, these companies ensure that the customers' transactions are well secured to avoid them losing their hard-earned cash to the fraudsters. However, the GAFAM companies do practice a little of other services. For example, apart from advertisement services, google offers premium services for the sale of different products, though at a small quantity. On the other hand, Amazon, Apple, and Microsoft do little advertisements though still on a small scale (Wang, 2018). This form of diversification may grow in the future, given the level of innovation that these companies engage in.

Ecosystem, Expansion, and Competition

GAFAM companies specialize in a specific ecosystem. For example, the Apple Company sells both the software and the hardware products as a single product. Once purchased, the consumers enter into an ecosystem that forces them to consume only services from Apple Inc. (Weprin, 2018). Leaving this ecosystem means that the consumer would pay a huge cost than the initial cost of purchasing the product. This notion of ecosystems is similar to all the other companies in the GAFAM category. It is no doubt that GAFAM companies work in a quasi-monopolistic market structure. Their level of capital and their market level make it hard for the new entries to thrive. These companies have been expanding year after the other. Consumers of their products only require to have access to the Internet connection (Rovell, 2018). Given the level and the pace

through which the world is becoming connected through the internet, translates to the rate at which these companies are expanding. For example, Google has become one of the most used search engines around the world. Even though entrepreneurs submit their products to other search engines, they do so as a second option to Google. The millions of users make people trust their services in the development of their businesses

Lastly, GAFAM companies rarely experience a lot of competition in the market. They have taken control of their market. Other upcoming online industries get consumed by these giants as they offer a better market for the services produced. However, there exists some form of competition from other players. For example, Bing is a fast-growing search engine that is competing with Google. Having joined up with Yahoo, Bing will be a serious threat to the development of Google.

Dependence on Innovation

The GAFAM companies are good at tapping talent. These companies help in promoting individual online businesses by ensuring that their work is protected from copyrights. They do so by securing small business data and downgrading other companies trying to copy what has already been done by others (Zuboff, 2016). This way, the GAFAM ensures that individual talents are safeguarded. Also, they encourage individuals to come up with unique brands that can be supported through their platforms. Only a small share of the total amount is used to pay these companies for the services rendered. Perhaps the most interesting characteristic that makes the GAFAM unique is their dependency on the Internet. According to Zaryouni (2015), these companies deliver their services through the use of the internet. In addition these companies depend on the internet to reach out to their customers. Of all these companies, only Apple does not fully depend on the Internet as users can have access to any information when a device is offline.

It is indisputable that GAFAM is the leading company in the telecommunication network. Other companies in the telecommunication field come second to the GAFAM. As the world is growing, the use of online telecommunication channels is growing. People are slowly moving out of the terrestrial communication. Whether a person is using Google, Amazon, Facebook, Apple, or Microsoft, they find it easier, efficient, and effective to communicate through these channels rather than the use of the terrestrial communication channels (Regina, 2012). Every ecosystem that is associated with each of the GAFAM is characterized by big data that makes each of them unique in the way they deliver their services. Their big data is associated with the company's customer and client base. Their clients compete among themselves through their platforms.

On the risk and democracy, Apple, Facebook, and Google are posing a threat to democracy not only in America but across the globe. Apple and Google are known to be politically biased and can feed people with false information concerning a country's political process. For example, in 2016, the Google search engine generated false results in favor of Hillary Clinton, who was competing against Donald Trump (Epstein, 2020). This significantly impacted undecided voters who would decide to vote for the "leading" candidate instead of making an independent

decision. Facebook, on the other, is used by the perpetrators of propaganda who sell a false agenda against their political competitors. Facebook, in most cases, does not regulate the information its users post hence threatening democratic decisions by the electorates. Microsoft, on the other hand, tends to protect election integrity and hence democracy. For example, ElectionGuard is software integrated with the voting system to enhance the accuracy of vote counting. Whether these companies are monopolies or not, only Google is a monopoly company because its Google search engine is a default gateway to the internet for millions of users across the globe. This threatens the economy because it promotes unhealthy competition among tech companies. Apple, Facebook, and Amazon have no monopoly and face competition from other companies such as Android, WeChat, and Alibaba, respectively (García-Sánchez et al., 2018).

Conclusion

The GAFAM media entertainment group has a lot of impact on the global economy. In the present time, it is difficult for humanity to survive without consuming a product from the GAFAM group. The development of Internet services and the limited time that people spend in their houses are some of the aspects that are making the global society to migrate to these online platforms. They have to catch up with the latest news and trends, advertise their products, and also enjoy some form of entertainment. They will choose to go for the services of the GAFAM media. With this kind of development, we expect the GAFAM to continue expanding in the years to come. Also, we expect to have other players joining up to this group in the future.

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