

Twitter Sentiment Analysis on Meta: A Lexicon-Based Analysis using Rapidminer

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Abstract—Meta is a new parent company of Facebook, Instagram, WhatsApp, and more as the tech giant tried to move on from its scandal-plagued social network to its metaverse vision. Meta-trended on Twitter as users worldwide tweeted their opinions about the rebrand. The rebranding of Meta has become a popular topic of debate. Social media users, companies, and investors desire to be a part of the next big thing. In this study, lexicon-based polarity detection automatically classifies data as positive, negative, and neutral. This study will investigate the main sentiments towards Meta and the topic social media users discussed Meta. In this study, 2997 tweets from the 9th to the 10th of November 2021 were scraped from Twitter using RapidMiner. The findings showed that 36% had a positive sentiment, 29% had a negative sentiment, and 35% were neutral about the Meta rebranding announcement. In addition, the topics often tweeted include NFT and stock, reaction, Metaverse, partnership, AR and VR, and policy. This study can help the Meta understand the people's multi-faceted views towards the Meta rebranding.

Keywords—sentiment analysis, Twitter, Facebook, Meta, Metaverse.

I. INTRODUCTION

With enormous popularity, the social media platforms industry has evolved significantly nowadays and is part of each individual and business. Technological advances, especially machine learning and artificial intelligence have made it possible to analyse and turn social media data into useful information that organisations can use to their advantage (Sivarajah et al., 2017). By creating virtual groups based on similar interests and sharing personal information about themselves, users may connect with existing friends and meet new ones. In addition to marketing their products and services, companies use social networks to monitor and respond to consumer complaints. As the market for social networks grows, so does the need for their services. In addition to millennials, these platforms have become more popular with people of all ages.

In 2019, the social networking platform market had a value of \$192.950 billion, and it is expected that this value will expand at a compound annual growth rate (CAGR) of 25.38% by 2026, reaching \$939.679 billion as the total market size (Research and Markets, 2021). COVID-19 elevated the global social networking platform market due to interrupted businesses due to global government lockdowns simultaneously influencing the market in the early months. Nevertheless, Facebook is still the largest and most popular social network as of December 31 2020, with 2.8 billion people using the platform monthly. According to Statista, the next most popular apps are Instagram,

Facebook Messenger, Twitter, and Pinterest; however, Facebook is still the most popular social network overall (Kenton, 2021). From this, we can acquire that apps under Meta are dominant in the social networking platform.

A. Problem Statement

According to Fast Company, a Harris Brand Platform study found that the public's trust in Meta dropped a lot after the company announced it was changing its name. In addition, New York Magazine says that Meta has lost \$500B since it changed its name, but it is probably not fair to blame the new name for everything. The American public has not overwhelmingly embraced Facebook's news that it has changed its name to Meta, according to a survey conducted by market research firm SightX. This study focuses on identifying the content of Twitter tweets that bring sentiment to Meta. There is still a lack of study on Meta as rebranding just occurred in October 2021; thus, this paper will give insight into public opinion towards Meta. Rebranding Facebook as Meta to keep it relevant for the next few years and being claimed as an escape plan due to its sinking reputation for encouraging the spread of misinformation and privacy issues received various opinions from Twitter users.

B. Research Objectives

The primary purposes of this study are as follows:

1. To identify the sentiment of Twitter users about the rebranding of Facebook as Meta.

2. To identify the sentiment of Twitter users on Meta to introduce Metaverse.

3. To determine the topics Twitter users discuss on Meta and its metaverse vision.

II. LITERATURE SURVEY

A. Sentiment Analysis of Twitter

Sentiment analysis on Twitter is a solution to the challenge of assessing tweets in terms of the opinion expressed in them. Twitter sentiment analysis technology allows the survey of public opinion on events or goods that are linked to people. Most current research focuses on extracting sentiment features from lexical and syntactic features. Sentiment words, emoticons, exclamation marks, and other symbols are used to express these characteristics (Jianqiang et al., 2018). The length restriction also encourages users to experiment with new ways of expressing themselves, resulting in the development of condensed informal language frequently employing slang, acronyms, and emoticons. As Twitter vocabulary is broad and rapidly growing, these fresh phrases may be unfamiliar to the Twitter sentiment analysis approach (Zimbra et al., 2018). Concurrently, most of the product or brand reviews are directly adapted from the research on more established social media. With more than 206 million daily active users worldwide, as reported by Statista, Twitter has become a gold mine for organisations and people with a solid political, social, and economic stake in preserving and growing their influence and reputation. Businesses can use sentiment analysis to survey popular social media such as Twitter in real-time.

B. Meta Background

Mark Zuckerberg, together with Dustin Moskovitz, Chris Hughes, and Eduardo Saverin, started Facebook on February 4, 2004. This site originally lets users in Palo Alto, California communicate with each other; as of December 1, 2004, one million individuals were active on TheFacebook. Thefacebook.com was then officially referred to as Facebook. In September 2006, Facebook increased registration, allowing a wide range of new users. New Facebook was released in 2008, and the 'Like' button was implemented the following year. In July 2010, there were 500 million active Facebook users. Facebook's first custom-built data centre opened on April 15 2011, in Prineville, Oregon, followed by the launch of Messenger.

On April 9, 2012, this well-known global technology corporation announced the purchase of Instagram. Facebook's initial public offering on May 8, 2012, with a peak market value of approximately \$104 billion, was the biggest in technology and one of the largest in Internet history (Koba, 2012). On October 4, 2012, more than one billion individuals were active on Facebook. Each month, more than 100 million individuals use

Instagram simultaneously. Facebook introduced Internet.org to collaborate with as many developers and entrepreneurs as possible to provide the advantages of connecting to as many different communities as possible. The acquisition of WhatsApp was announced on February 19, 2014, with a purchase price of \$16 billion, \$4 billion in cash, and \$12 billion in remaining Meta shares (Deutsch, 2021). Connectivity Lab was subsequently announced on March 17, 2014. The purchase of Oculus was subsequently announced on March 25, 2014. Also debuted on October 10, 2016, was Workplace.

WhatsApp Business was a new venture that was introduced at the beginning of 2018. Facebook then began a new endeavour with the release of Facebook Pay. Later, Oculus Quest 2, an all-in-one VR headset, was released. The first cases to be reviewed by the Oversight Board will be chosen on December 1, 2020. Facebook announced a \$1 billion investment in artists on July 14, 2021. Facebook introduced Horizon Workrooms on August 19, 2021, another significant game-changer. On September 27, 2021, Facebook created the XR Programs and Research Fund to aid in developing the Metaverse. Mark Zuckerberg presented Meta, a new parent company, on October 28 at Connect 2021, which unifies its products and technology under a single brand. Using the Quest technology, a single line in space is transformed into a continuous loop operating in 2D and 3D environments. Meta was moving away from 2D displays and toward immersive experiences such as virtual reality and augmented reality for the next generation of social technologies.

As a result, the Metaverse represents the next step in the growth of social connectivity. In a metaverse, virtual and physical realities co-exist in the same digital environment. In order to connect and explore the Metaverse, Meta is already developing new technology. 3D spaces in the Metaverse will enable individuals to interact in ways that no one can imagine. More than 3 billion people are now using meta products across the globe to exchange ideas, provide support, and make a difference. Meta products include the Facebook app, Messenger, Instagram, WhatsApp, Oculus, Workplace, Portal, and Novi.

III. METHODOLOGY

Sentiment Analysis is a method to understand unstructured data by transforming it into useful information by categorising it by weight of sentiment. According to Agarwal et al. (2015), the sentiment analysis technique utilises Natural Language Processing (NLP) to extract, convert, and analyse views that are included inside a text and then classify those opinions as either positive, negative, or natural feelings. In other words, it is the act of understanding the feelings and sentiments that are communicated through written words. There are two primary approaches that are used when attempting to automate the process of sentiment analysis. The first tactic uses a lexicon consisting of weighted words, whilst the second method uses

techniques derived from machine learning. Lexicon-based approaches employ a word stock dictionary containing opinion terms to detect polarity. These algorithms then match a given collection of words in a text with the terms in the dictionary.

Tweets are typically beneficial in providing a large volume of sentiment data. Twitter is the primary source of data mining in this study to extract user expressions. Text mining and sentiment analysis in which a user's text is evaluated and recommendations are derived. Those approaches are becoming increasingly popular among business decision-makers (Trivedi & Singh, 2021). These data are valuable in determining public opinion on Meta. The Valence Aware Dictionary and Sentiment Reasoner (VADER) is a vocabulary and rule-based sentiment analysis tool that categorises words and phrases in accordance with the valence with which they are communicated on social media. With its extensive vocabulary of letters and symbols, VADER is used to manage data. Each word in the lexicon is evaluated as positive or negative and how positive or negative it is. By using Vader, we can determine whether the tweets are positive, negative, or neutral. This study involved the application of RapidMiner software version 9.9 and Tableau software version 2021.3 as the tools.

A. *Sentiment Analysis Process*

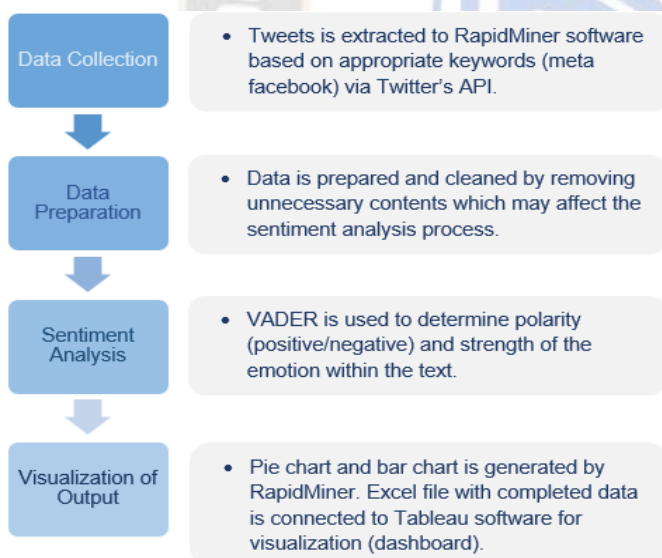


Figure 1. Brief summary of Meta sentiment analysis process

Figure 1 shows a brief summary of the overall process of sentiment analysis of Meta; further details will be explained in this section.

B. *Processes in RapidMiner Software*

RapidMiner has a number of operators, each of which serves a specific purpose. The Read Excel operator and Store operator are used in this process to read the data from the notebook and save data to the RapidMiner repository. The output port of the Read Excel operator is connected to the Store operator's input

manually. Next, the store operator is connected to the first result port of the entire process. Table I shows the information acquired from the data.

In process 1, data are extracted from Twitter. Search Twitter operator is used, and for the query, the keyword "meta facebook" is set. The search limit for keywords is adjusted by as much as 3000 data. The raw data is extracted from Twitter and stored in an Excel file.

Process 2 is where the data is extracted from Twitter. A new connection is created to connect RapidMiner to the Twitter account. The access token that Twitter API needs as a permit is managed to be secure at the beginning of the process. Two operators are used in this process. The Twitter search operator is used, and the keyword 'meta facebook' is set for the query. The limit of search for keywords is adjusted by as much as 3000 data. The output port of the Search Twitter operator is connected to the input of the Write Excel operator. Then the output port of the Write Excel operator is connected to the result port. The raw data is extracted from Twitter and stored in an Excel file having 2997 rows with attributes.

The following process is data preprocessing, a process of preparing and cleaning a dataset in preparation for sentiment analysis. Finally, unrelated data be eliminated from the analysis by appropriate techniques applied to data to minimise text noise, and dimensionality and aid in the enhancement of classification efficiency.

In process 3, 5 Replace operators are placed within the Subprocess operator's inner part. The parameters for each operator are filled with the attribute filter type as single and the attribute as text. These are a parameter that is implied:-

- Replace username = @(\w+)
- Replace colon = :
- Replace hashtag = #
- Replace retweets = RT
- Replace URL = (https|http)(.*)
- Steps in Data Cleaning

After removing unnecessary words and characters, the white space is trimmed using the trim operator. The following process is to remove duplicated data from the Remove duplicates operator.

The last step in the process of cleaning up the data is to fill in the missing values.

The sentiment analysis of this paper entailed the VADER, a lexicon and rule-based sentiment analysis tool which detects the polarity and intensity of emotions in human language.

Process 5 generates a word list of each positive and negative sentiment of Meta. This process is to identify frequent word count. Concurrently, there are five operators within the Process Document from the Data operator. The operators are:

- Tokenise
 - The parameter mode is set as non-letter. The stream of text is split into a sequence of tokens.
- Transform Cases
 - The parameter transform to is set as lowercase. Characters are transformed to lowercase.
- Filter Stopwords (English)
 - Commonly used words are removed.
- Stem (Porter)

- Inflexion from words is removed.
- Filter Tokens (by length)
 - Parameter min chars are set as 2 and max chars as 99. Characters are executed between 2 and 99.

Visualisation of output is created as the polarity of the sentences is determined. The goal of sentiment analysis is to turn unstructured data into valuable data. Following the conclusion of the analysis, the findings are shown through pie charts and bar charts generated by RapidMiner software and Tableau software to show the dashboard for ease of understanding.

TABLE I. ABOUT THE DATA ACQUIRED

Keyword	Date of Tweets Acquired	Tweets Acquired via Twitter API	After Removal of Duplicate Tweets
Meta facebook	9/11/21 - 10/11/21 (12 days after Facebook rebranded to Meta)	2997	1317

IV. FINDINGS AND DISCUSSION

In this section, the findings of the sentiment analysis will be discussed in detail, encompassing positive and negative sentiments on Meta.

A. Sentiment on Meta

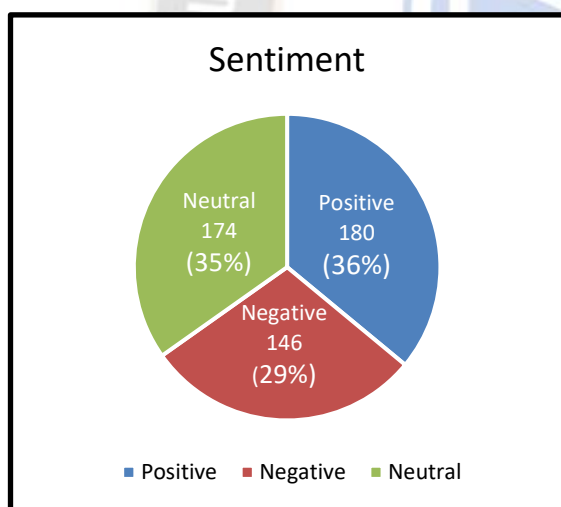


Figure 2. Meta Sentiment Analysis

Meta Sentiment Analysis above is based on a clean dataset from RapidMiner. Meta received 36% positive sentiment compared to 29% negative and 35% neutral sentiment, as shown in Figure 2.

B. Content analysis

Manual content analysis was done to identify key themes that people discuss on Twitter about the Meta. The are seven themes emerged.

- NFT and stock
 - The NFT and stock theme look at investor and monetisation feature perspectives. The NFT theme deals with the perception of people towards a new key monetisation feature of Meta move that would depend on NFTs. NFTs are unlike stocks and bonds, for which you have a quantified concept of the investment's intrinsic value apart from its market value. Their market value is solely determined by how much the crypto community is willing to pay for them. However, the stocks theme captures the sentiments of investors toward the company's stock market share value performance after the rebrand.

- Reaction
 - This theme mainly aims to understand people's sentiment *re actions to the new Meta identity* and logo in the rebranding strategy. There are various reactions to the Internet, and social media users have begun to spread rapidly over the Internet.

- Metaverse
 - This theme deals with the criticism and *concerns* surrounding the changes and what it all means for Metaverse within Meta. The Metaverse is a substantial part of its grand plans to signal a shift from its social media focus to building the Metaverse.

- Partnership
 - This theme captures the partnership initiatives between Meta and other relevant companies to realise the new Meta business strategy to expand its future of Metaverse technologies. Meta is working on new projects and has a number of partnerships and collaborations in the works to speed up its Metaverse even more.

- Policy
 - Policy theme mainly focused on the privacy and protection of Meta technology based on changes done by Meta from Facebook, especially on advertisements that might be sensitive towards certain groups of people.

- Augmented Reality (AR) and Virtual Reality (VR)

AR and VR themes discuss the new element related close towards the existence of the Metaverse. AR refers to mixed reality; a user could see a real world but be augmented with additional information or graphic in their view. This could usually be done by a gadget such as a mobile phone, Google Glass and more. While VR refers to a real world that could be converted into virtual reality, including what the user sees and hears, it could be replaced with computer-generated. VR usually possibility occur with the user wearing a VR headset.

C. Positive Sentiment of Meta

Table II shows the positive themes and example tweets with the score. This user's tweet consisted of 'surely' (0.49), 'solid' (0.15), 'serious' (-0.08), 'perfectly' (0.82), 'advantage' (0.26), 'lol' (0.46), and 'welcome' (0.51) which made it the highest positive scoring string. Two of the user's tweets conveyed excitement upon Facebook's rebranding to Meta. Concurrently, 'fun' (0.59), 'powerful' (0.46), 'powerful' (0.46) and 'wow' (0.72), 'excited' (0.36) made it among the top scores of positive scoring strings.

This user agreed that there would be a bright future for non-fungible tokens (NFT) in the Metaverse as Meta's Metaverse will support NFT, a unique digital asset built on blockchain technology which could boost Ethereum (ETH) where the sign of digital collectables format has grown. NFT is a digital asset that links ownership to unique physical or digital items like

artwork, real estate, music, or videos. Moreover, even tweets count; Jack Dorsey, the former Twitter CEO, sold his first-ever tweet as an NFT to a Malaysia-based businessman for more than \$2.9 million on March 23 2021 (Harper, 2021). NFTs can be considered modern collectables. They are purchased and sold online, representing digital evidence of ownership for every specific item.

Based on Figure 3 and Table III, "reaction" recorded the highest theme, with 39% acquired from positive sentiment tweets on Meta. Meanwhile, 'partnership' is the lowest theme recorded with 8%. In short, Twitter users tweeted a positive reaction on Meta compared to the others.



Figure 3. Wordcloud Positive Sentiment of Meta

TABLE II. POSITIVE THEMES AND EXAMPLE TWEETS WITH SCORE

Themes	Example Tweets	Score
NFT & Stocks	Surely NFT.Gamestop and Facebook changing it's name to Meta were solid clues that something serious was occurring and GME was perfectly positioned to take advantage. Didn't you basically write the gmeDD? lol Either way, welcome back	2.6
	Why do investors remain bullish on some tech stocks...? AMD EPYC chips were selected by Meta (formerly known asFacebook) to help power its data centers, announced at its virtual Accelerated Data Center Premiere event this Monday.The two companies wo...	0.4
Reaction	FUNFACT	1.5
	Meta was announced to be the new owner of Facebook, Instagram, and whatsapp; However THIS IS A POWERFULPICTURE WITH A POWERFUL MESSAGE! GNED1411	
	Wow! Facebook is now Meta. Is everyone as excited as I amabout this?	1.1
Metaverse	METAVVERSE - A VR CITY IN GAME??	0.5
	Immediately after Facebook changed its name to Meta, theMeta-verse movement emerged more than ever?? With Meta-verse, the rough roads, thrilling races bring you a morerealistic experience than ever	
	Igor Pancaldi, Creative Director at reacts to Facebook's Metarebrand and reflects on designing for the Metaverse...	0.5
Partnership	Partnerships between enterprise vendors are growing Workplace from Meta will now integrate with Microsoft Teams.	0.2
	Microsoft partners with Meta to integrate Teams into itsFacebook-like Workplace	0.4
AR & VR	New research shows an increase in virtual reality headsetdemand as we head into the holidays, news Meta/Facebookshould be very happy about as it owns the market.	1.3
	metaverse facebook virtualreality training learning meta	
	Have you read my new roundup of the best AR VR news of theweek? The XR Week Peek (2021.11.08) Microsoft Teams gets immersive, Meta may open its stores, and more!	0.8
Policy	Meta removes thousands of ad targeting topics related to sensitive topics like religion, sexual preference and race, amongothers, across all its ad-backed services (Facebook, Instagram, Messenger and Audience Network)	0.4
	Meta said on Tuesday that it plans to eliminate advertisers' ability to target people based on their interactions with contentrelated to health, race and ethnicity, political affiliation, religion, sexual orientation and thousands of other topics.	0.3

TABLE III. TOTAL AND PERCENTAGE OF POSITIVE THEMES

Theme	Frequent	Percentage (%)
Reaction	70	39
Metaverse	33	18
AR & VR	23	13
NFT & Stocks	22	12
Policy	18	10
Partnership	14	8
Total	180	100

Despite the fact that they have been around since 2014, NFTs are gaining popularity as a way to buy and sell digital artwork with the boost of Meta to bring Metaverse to life. Users believed that GameStop Corporation's (GME) stock price would be bullish as Facebook rebrands to Meta in a further sign of its metaverse ambitions. GME is an American retailer of video games, consumer electronics and gaming merchandise and the largest video game retailer worldwide. Other user tweets contributed 0.4 and 0.3 scores for the positive scoring tweet. These tweets mentioned that some technology stocks remain

Facebook rebranding to Meta has been compared to Google's rebranding to the Alphabet. Nonetheless, rebranding these two big companies resulted in a positive stock market response. The most apparent distinction between Facebook and Google rebrands is the public perception of them. Google was not having any public relations issues at the time of its redesign, while Facebook, with the issues, hit a breaking point of the week due to revelations from the "Facebook Papers". It brought out the company's struggles to deal with misinformation, mental health, hate speech, and more. Given that media coverage concentrated on the company's prior name presents the brand in an unfavourable light, CFRA's Zino believes that Meta's new face is not a "pure coincidence" (DiMolfetta, 2021).

Concurrently, some Twitter users expressed their positive opinion regarding Meta's vision on Metaverse. A user stated that the Metaverse has been emerging since the Meta was introduced. The Metaverse is an online environment where people may engage in immersive events such as virtual concerts, buy digital items, and interact with other avatars, utilising virtual and augmented reality headsets in certain situations. Moreover, Microsoft Corporation and Nvidia Corporation have both declared plans to develop metaverse platforms or tools to aid in the creation of those places (Bobrowsky, 2021). The Metaverse is a significant gamble for Meta, formerly known as Facebook.

A tweet retweeted by one digital company, which consists of the Creative Director's reaction, made positive sentiment for Meta. This user shared his view on Metaverse through The Drum. He agreed that the Metaverse would be difficult for us to ignore in the future decades. It will not only be an add-on to today's Internet, nor act as a replacement. Instead, it will co-exist

bullish and in investors' interest. For example, AMD stock up after the company won the Meta partnership. During the keynote, AMD unveiled a range of new chips, and the company's share closed up 10% (Bursztynsky, 2021). AMD, an American multinational semiconductor company, scored a big deal with Meta as a chip customer about to enter Metaverse, and this partnership may support the company's fight against its market competitors. From these tweets, it can be seen that Facebook's rebrands to Meta acquired positive feedback from Twitter users who are actively involved in trading stock, NFTs and even cryptocurrency. As Meta is all in Metaverse, it will be a great indication for the future of the stock, NFTs, and cryptocurrency market.

Connect 2021, Mark Zuckerberg announced all of its apps and technologies would be under one company, Meta. Facebook, WhatsApp and Instagram, the three most popular apps, will still retain their original identities and will be under Meta; similar happened to Google's corporate structuring into the Alphabet in 2015. At the same time, another user was impressed with how everyone reacted, and attention was paid to Facebook's Meta compared to Google's Alphabet in 2015.

as parallel dimensions and fundamentally alter the interaction behaviour. People will enter a new world as the Internet user evolves into a metaverse avatar, where we will be active participants in a new sort of network. Instead of looking at the Internet, we will be a part of it. Furthermore, the Metaverse will expand its influence into the physical realm, altering our perception and experience of reality (Pancaldi, 2021).

Another user, through a tweet that two other users retweeted, urged its followers to be concerned about Metaverse as Facebook rebrands as Meta. The World Economic Forum explained why people should start to concern themselves with the concept of 'extended reality', which encompasses a blend of augmented virtual and mixed reality to be a potential popular mode of social and economic interaction. This entails the ability to create, trade and invest in goods, services, and products; although the Metaverse is not yet a reality, it may be the next step in the evolution of the Internet.

Another interesting topic Twitter users address is the partnership of Microsoft Team with Meta. A tweet identified as positive sentiment consists of the words 'growing' (0.18) and 'like' (0.38).

Facebook Workplace has been rebranded and will soon combine with Microsoft Team to broadcast video into Workplace groups. This allows employees who use Microsoft Teams or Workplace to be able to monitor, comment on, and reply to meetings in real-time without having to navigate between apps. In addition, early in 2022, live streaming of Teams' meetings in the Workplace will be available. This partnership could be most beneficial to Meta, whose workplace service is far behind its competitors in terms of users (Rodriguez,

2021). The integration of Workplace by Meta with Microsoft Teams is the latest in a series of collaborations between two major companies. Moreover, Microsoft and Meta are both working on their vision of Metaverse, which is possible to have more partnerships in the future. "The way users end up using it is user use the complementary features, not the competing features", said Ujjwal Singh, Meta's head of the Workplace, in his interview with CNBC.

Augmented reality and virtual reality are among the contents in which Twitter users tweet their positive opinion toward Meta. These words contributed to positive scoring strings' increase' (0.33), 'demand' (-0.13), 'holidays' (0.41), 'happy' (0.69), 'best' (0.82), 'responsible' (0.33) and 'creating' (0.31).

A tweet on virtual reality headset demand showed positive signs for the Meta. Game.co.uk conducted this study and discovered the VR Oculus Quest 2, the latest Oculus headset released by Meta-owned Oculus, dominated based on search phrases from the previous 12 months. It receives 368,000 searches compared to other models (Griffith, 2021). Meta has made significant investments in augmented reality and virtual reality, which entailed the acquisition of Oculus to work on the Metaverse.

A user tweet on Meta rumoured to be building actual stores to demonstrate virtual reality devices. In terms of the future, according to a New York Times report, Meta is considering building its own stores and wants to emulate Apple in its AR and VR products presented in dedicated stores with amazing demos. About a week after Facebook announced its name change to Meta, the proposal was revealed. Facebook Reality Labs aims to provide individuals with the tools they need to feel connected at all times and in all places. The team is comprised of a varied collection of innovators, problem-solvers, and experienced visionaries who are committed to transforming everyday

occurrences into experiences with the potential to affect the lives of billions of people. Optics and displays, computer vision, graphics, audio, brain-computer interface, haptic interaction, eye/hand/face/body tracking, perception science, and true telepresence are some of the technologies our team is developing to create groundbreaking AR glasses and VR headsets. Facebook Reality Labs will likely reduce its total operational profit by around \$10 billion in 2021 due to its meta-investment in its hardware segment. Over the next five years, 10,000 personnel will be hired in Europe to work on this initiative (Culliford & Balu, 2021).

A user received 86 retweets and 135 likes on this tweet. His followers reacted to his tweet by leaving some comments regarding the issues mentioned. Some of them are positive and negative comments. A news article from The New York Times has been used to support his tweet. Meta will remove specific targeting choices related to health, race or ethnicity, political affiliation, religion, or sexual orientation as of January 19, 2022 (Isaac & Hsu, 2021). Therefore, this update minimises the ways in which the targeting capabilities may be exploited, since these features have been used to discriminate against people and spam users with unwelcome messages. The update will affect advertisers on Facebook, Instagram, Messenger and Audience Network, which displays advertising in third-party applications. However, advertisers would still be able to target their customers with advertising based on other categories and themes, such as location.

"Meta has received concerns from civil rights professionals and lawmakers that the targeting choices might be applied in ways that lead to poor experiences for individuals in underrepresented groups", said Graham Mudd, Meta's vice president of product marketing.

TABLE IV. TOTAL AND PERCENTAGE OF NEGATIVE THEMES

Themes	Example Tweets	Score
Policy	Hey aren't you ashamed of your skewed policies yet??someone posts vile stuff against minority community & threatens harm YET IT IS NOT AGAINST COMMUNITY STANDARDS AS PER YOU. SHAME ON YOU FACEBOOK	-2.9
	Facebook is so bloody stupid. Posting reviews on the Australian Boutique Wines page and am rejected "This listing goes against our rules on alcohol" Zuckerberger and his ship of fools.	-2.3
Reaction	Facebook has changed it's company name to Meta .	-1.4
	A chicago Based company of the same name has filed a lawsuit against Facebook alleging trademark infringement "When they failed to buy us, they aimed to bury the company by force of media," Meta Company Founder Nate Skulic	
	Meta Company sues Facebook for allegedly 'stealing' its name	-0.7
Metaverse	The Metaverse is pretty much dead on arrival. Not only does no one actually want it, the technology to deliver the experience Facebook, err, Meta wants you to think you'll have doesn't exist. and I break it down on ...	-0.5
	The Metaverse Was Lame Even Before Facebook - The Atlantic	-0.5
Services	FRAUD ALE! I added funds in Facebook Business Account more than a month ago. Facebook business has FAILED to locate the funds, ad account has been paused, money has disappeared. It's a huge amount. Total Fraud. metafraud facebookfraud	-1.9
	yall need to fix Facebook messenger bugs????? whenever i open group chats or direct message it kicks me out of the app and sometimes its stuck on messenger meta (loading screen??)????????	-0.3

TABLE V. TOTAL AND PERCENTAGE OF NEGATIVE THEMES

Theme	Frequent	Percentage (%)
Reaction	80	55
Policy	28	19
Services	26	18
Metaverse	12	8
Total	146	100

D. Negative Sentiment of Meta

Table IV shows the positive themes and example tweets with the score. The user tweeted his response by quoting another user's tweet regarding hate speech and the desecration of Mazar are not against their community's values. This issue also related to rumours and appeals to violence that surged primarily on Facebook's WhatsApp messaging app in late February 2020 when the confrontation of the Hindu majority and Muslim minority caused dozens of deaths, as reported by the Wall Street Journal. The Facebook papers were the first series of sensational Wall Street Journal articles based on a cache of internal information revealed by Frances Haugen, a former employee who turned whistleblower. Haugen's devastating records exposed the extent to which Meta knowingly enables toxic policies and business practices, eliciting outcry from Congress, human rights organisations and the general public. Nonetheless, Facebook appeared to exist in another universe by the fact it rebranded to Meta in the middle of the crisis without apologising for the damage it created on this one which has sparked mockery and scepticism.

These users who are still confused about the rebrands of Facebook can be seen through their tweets as they question what Facebook and Meta are. A user felt annoyed as he needed to explain this rebrand to his parents, which could be difficult to explain to older people with new metaverse things. This rebrand can be called a major rebrand; however, some people are still confused, and some may not even be aware of it. Its individual platforms like Facebook, Instagram and WhatsApp are unaffected. Only the parent company that controls them is affected. Mark Zuckerberg mentioned that the current brand could not reasonably represent everything they are doing currently, and it needed to be updated, bringing the rebrands of his company as he unveiled plans to build a "metaverse" (Thomas, 2021).

There are negative tweets by the users regarding the company choosing to rebrand to Meta instead of other names. These are the words promoting negative sentiment for Meta' lawsuit' (-0.23), 'infringement' (-0.54), 'failed' (-0.59), 'stealing' (-0.69), 'failed' (-0.59), 'missed' (-0.31) and 'pay' (-0.10).

Based on Figure 4 and Table V, reaction recorded the highest theme with 55% acquired from negative sentiment tweets on Meta. Meanwhile, Metaverse is the lowest recorded theme with 8%. In short, Twitter users tweeted more about their negative reaction to Meta compared to the others.

Facebook announced the rebranding of its Facebook Company to Meta on October 28, 2021 while this may have come as a shock to some people and impacted on few businesses that were using the same brand name. Meta Company, a Chicago-based software startup, sued Facebook alleging that that social networking site stole its name and livelihood after being renamed to Meta. Nate Skulic, the founder of Meta Company, said that Facebook lawyers have hounded them to sell their name, and after failing to buy them, Facebook decided to bury them through the media force (Khanna, 2021). A user retweeted a tweet from another user who received 6.9k retweets on this issue. Mark Zuckerberg has already encountered problems with his new announcement of Meta becoming the umbrella company. The Meta PC company has operated under the Meta name for over a year and was trademarked in August. Another tweet regarding Meta PC having a blast, sharing humorous memes and videos in an attempt to cash in on the attention. Joe Darger and Zack Shutt, the company founders, told TMZ that they are willing to give up the brand name if Mark Zuckerberg agrees to pay \$20 million (Mailonline, 2021). However, the shared name may not be all bad, as Darger and Shutt reported that their social media accounts have already received a 5000% increase since Zuckerberg's announcement. In addition, several experts predict that Mark Zuckerberg will agree to pay the total price for the trademark as he already put so much effort into the establishment of Meta that a minor stumbling obstacle like a trademark would seem insignificant.



Figure 4. Wordcloud Negative Sentiment of Meta

These issues are continuously talked about by people. Twitter users provided their opinion that the rebranding idea was to escape the fact that the company name has become toxic. Twitter users showed their concern that Meta is dealing with a slew of public relations issues. Facebook papers, which were leaked earlier October revealed the corporation's inner workings and whistleblower Frances Haugen claimed that the company prioritised profitability before removing hate speech and

misinformation from its site (Mulligan & Clinton, 2021). It is related to the content of a tweet retweeted by one of the users. Despite those accusations, Zuckerberg has already stated that the rebranding has nothing to do with the company's recent crisis over leaked papers and people still question it. Another user expressed his opinion that rebranding will not change anything. 91% of the market for personal social networking is a monopoly by Meta, claimed by Snapchat investors. The blackout occurred on the same day that Meta filed a court motion to dismiss the Federal Trade Commission's (FTC) most recent lawsuit against the corporation, which is sufficient to demonstrate what a monopoly is. According to the FTC's lawsuit, Facebook is the most popular personal social networking site on the planet and has a monopoly on such services. According to this lawsuit, Meta allegedly targeted possible rivals who would undermine its monopoly (FTC, 2021). The Federal Trade Commission (FTC) is a federal organisation tasked with enforcing consumer protection laws, protecting consumers from exploitative corporate activities, and ensuring fair market competition. The complaint is part of the FTC's recent push to enforce antitrust laws against companies it alleges act as monopolies in their industries.

Meta's metaverse vision received some negative comments as the users were concerned about the possibility of the future life with Metaverse. Following Facebook's announcement that it was changing its name to Meta to symbolise a vision and considerable investment in developing a virtual universe, social media has been flooded with discussion on Metaverse. A user in his tweet also shared his podcast link for his followers to know more about Metaverse. A user mentioned that the Metaverse was wearisome when Meta announced its Metaverse vision. People have been speculating about this future for decades, but it has never come close to matching anyone's expectations. Another user also conveyed the same thing in his tweet where Metaverse was lame even before Facebook/Meta planned to bring it to life. It was terrible then, and it is terrible now, as Zuckerberg's Metaverse resembles what was anticipated in 1994 (Zuckerman, 2021). The problem is that it is tedious. A virtual environment where millions of people could soon assemble to work, play and socialise ideas is not as new as it might seem; the Second Life appeared in 2003. As addressed by a user, if people had a metaverse that regulated their relationship, a location where we maintained our assets and interacted with politics, whoever controls that Metaverse would be the closest thing we have to a scientific god (Walsh, 2021). This may be the reason people start to freak out. From fake news and deep fakes, media technology misuse has exposed people to distortions and misinformation.

In addition, some other topics tweeted by Twitter users bring negative sentiments toward Meta. These are the words 'fraud' (-0.72), 'failed' (-0.59), 'disappeared' (-0.23), 'huge' (0.33), 'fraud'

(-0.72), 'no' (-0.31), 'surprise' (0.28), 'lied' (-0.41), 'like' (0.38), 'stuck' (-0.26), 'worse' (-0.54), and 'no' (-0.31).

From the tweets of both users, Meta is still receiving complaints on issues related to funds, restricted accounts, and bugs in its Facebook messenger. Facebook Business account is a free web page that businesses may create to increase their online visibility. Small businesses can use this initiative to promote their services, strengthen customer support and increase brand recognition on one of the popular social media platforms by Meta. This user expressed his disappointment as he could not find his funds while the ad account was paused on his Facebook Business account. Small businesses will be most affected if this issue keeps happening and does not reach Meta's attention and no solution is given. User Shanshan's issue was regarding Facebook messenger bugs, a common issue faced by other users. However, there is still no way to totally tackle this issue by Meta, even though users have been complaining for years. Common issues such as app bugs will impact the Meta brand daily as users cannot acquire a smooth experience while using its apps.

Although Facebook has stopped using the facial recognition system, Meta will continue to use the system for its metaverse goods (Hamilton, 2021). This has caused one of the users to feel annoyed and claimed Meta continuously exaggerated their users. Programmes' termination by Facebook, which included the claimed deletion of more than one billion face prints, makes it one of the most significant face recognition initiatives to be

V. CONCLUSION

Sentiment analysis allows Meta to pinpoint positive or negative sentiments from customers regarding their brand, services and applications on the market and take action to remedy such issues. Meta may acquire insights and know exactly what is expected from them and act accordingly in real-time by analysing the vast number of opinions and comments expressed on social media platforms. Based on the findings, Meta recorded 180 positive tweets and 146 negative tweets. Thus, Meta has more positive sentiment tweets compared to negative ones. The positive sentiment tweets are grouped into six themes: NFT & Stocks, Reaction, Metaverse, Partnership, AR & VR, and Policy. Meanwhile, the negative sentiment tweets are grouped into five themes: Policy, Reaction, Rebranding, Metaverse and Services.

The rebranding of Facebook to Meta received massive attention from Twitter users, which indirectly caused it to trend on Twitter. Facebook claimed its rebrand as a technology breakthrough that moved toward Metaverse; however, it received some negative opinions from Twitter users. Thus, Meta should address issues regarding its services and policy in the best way to change users' perception of Meta, as they still see that this significant rebrand has a fundamental problem. The new privacy centre by Meta will categorise things into five groups: security, sharing, data collection, usage and advertisement. However, the

terminated since the technology's inception. People are concerned that Facebook backed away from facial recognition but not Meta. This decision is a big step forward for antifacial recognition campaigns, but not anymore, as Meta plans to use facial recognition in Metaverse. Thus, as long as invasive biometric technology like face recognition is used, Meta will face criticism from activists and anxious users.

The tweet above showed that brands are slowly moving from social media to social media apps under Meta. One of the brands that announced to leave social media platforms is Lush. The British cosmetics decided to leave four of its major social platforms. Lush is not the only company that has rethought its social media strategy. Bottega Veneta abruptly left social media in January before releasing the issue, a quarterly digital magazine, in April. Balenciaga wiped its Instagram grid clean in June (Webb & Chitrakorn, 2021).

Lush made the decision in reaction to recent news about a social network whistleblower and the negative influence algorithms have on users' mental health. This is a topic that is vital to Lush's core demographic of teenage girls, who are concerned about their own mental health. Lush, however, will continue to operate on Twitter and Youtube as it seeks to "create stronger communication channels elsewhere" (BBC, 2021). "While social media was not created to look after people's health, however, our products are" stated by Jack Constantine, the chief digital officer at Lush.

findings show that users are unhappy with it as the new policy is too strict. Meta should find alternative solutions for this issue to boost users' satisfaction with its social media apps. A policy that will take care of both parties needs to be implemented in the near future. People will still see Meta as the same old Facebook by a new name unless it proves that it is making genuine improvements, and as a consequence, Meta will stay relevant for the next ten years.

From the findings, people show their concern through their tweets about Metaverse, which is something new for most of them. To keep up with the Metaverse's expanding space, submerging into it will need the advancement of security measures to a whole new level. This would necessitate the rapid creation of new personal data and privacy protection mechanisms capable of maintaining the security of individual identities and belongings in the virtual world, which Meta should seriously explore. Moreover, Metaverse will feature its own virtual marketplace, which will involve especially NFT and cryptocurrencies, which will bring more challenges for Meta to convince its user to trust the transaction and how to develop a unified system that can be used to authenticate who owns virtual assets in its Metaverse. Finally, because the Metaverse is bound to attract a large number of people, it is an excellent place to communicate and exchange information. However, if there are

no precise restrictions governing the borders, this poses a concern.

Meta should start drafting a set of rules to ensure that its Metaverse is safe and secure for its users. Meta's goal is to help bring the Metaverse to life so that people can experience it emotionally and physically. Meta should consider investing more in R&D to match its users' expectations for the next 5 to 10 years, as its haptic and motion capture technologies will need to grow to a new level. As Meta is on the verge of its metaverse vision, it is unquestionably necessary to ensure that Metaverse serves as a replacement for the current physical world. As Meta is eager for this next chapter of social connection, it is crucial for people to be protected and secure in this new huge environment.

In this study, some limitations have been identified. Firstly, tweets extracted via Twitter API, as many as 2997 tweets were suggested for future study to increase the number of tweets extracted to bring more themes to discuss. This will help us to understand more about people's expectations and feelings about Meta. Secondly, this capstone project implemented VADER sentiment analysis based on the dictionary that maps lexical elements to emotion intensities which are referred to as sentiment scores. Therefore, future studies should try different models for sentiment analysis to obtain more diverse findings from the Meta sentiment. Third, the time constraint for the data collection process slightly affects the findings of this capstone project, as the data are extracted after 12 days after the Meta rebrand announcement by Mark Zuckerberg, which suggested for future studies to extract when the brand is trending so that more interesting findings can be acquired. Lastly, there is the inability to pinpoint a specific area where the tweets originate. Consequently, the findings gained cannot be interpreted based on the target location-based.

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