



Meta Valuation  
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## **Why I am analyzing Meta:**

- Meta's stock has dropped from \$379 USD a share to 136 USD
- The company is currently selling at a P/E ratio of 13~ TTM earnings
- Incredibly profitable company with ROE above 30%
- In 2021, Meta repurchased more than \$44.5 billion common stock
- In the nine months ended Sept 30, Meta has repurchased \$21 billion common stock
- Strong competitive advantages of network effects, scale, and customer captivity

## **Analysis Outline: How I plan to value Meta**

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  - c. Core Business Metrics
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    - ii. DAU
    - iii. DAU / MAU
    - iv. ARPU
2. Understanding Why and How Users Use Meta's Products
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    - i. Why do people use social media?
    - ii. Why do people use Meta's products?
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    - i. What drives creators or power users to use social media?
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## Business and Background Information

### Background Information

Meta, also known as Facebook Inc, and trading under the ticker tag of META. Is a technology media company that specializes in social media applications. These include Facebook, Facebook Messenger, Instagram, and What's App. These products are part of the Family of Apps group—Meta's core advertisement business. Which currently represents 98% of the company's revenues.

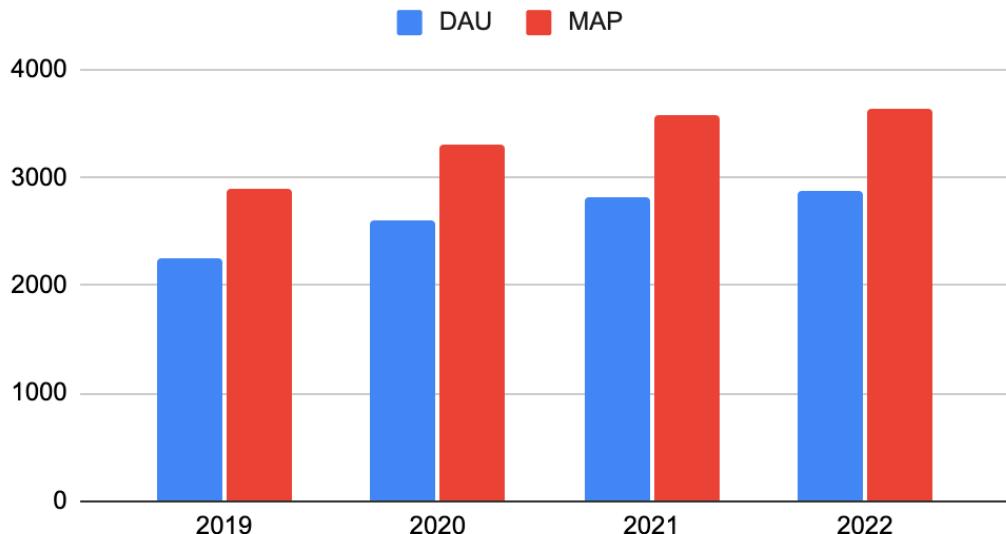
People use these products to connect and communicate with their friends, communities, acquaintances, businesses, and people they are interested in. People do this in a variety of ways: through text, messaging, photos, and now short-video.

As of September 30 2022, Facebook (Meta's Flagship platform) had 1.98 billion daily active users and 2.96 billion monthly active users. The relationship between DAU and MAU has been very stable since 2015. However, geographically, the engagement ratio has been slipping minimally over the past 3 years in North America and Europe, with minimal user growth in both areas. In 2022 for example, MAU and DAU decreased in Europe, and barely increased in the US and Canada. This decrease in users and engagement can be explained by rising social media competition from apps like Tik Tok and reputational damage the Facebook brand has undergone for privacy data scandals like the Cambridge Analytica case. On the other hand, engagement and user growth have continued to grow at a small pace in Asia Pacific and Rest of the World thanks to the rising number of people with access to internet through mobile devices. MAU grew by 2.6% in 2021 compared to 2020 in Rest of the World. Similarly, MAU grew by 2.11% in 2021 compared to 2020 in Asia Pacific.

US and Canada						Europe							
Year	DAU	MAU	DAU/MAU	DAU Growth	ARPU	ARPU Growth	Year	DAU	MAU	DAU/MAU	DAU Growth	ARPU	ARPU Growth
2009	64	112	57%				2009	63	117	54%			
2010	99	154	64%	54.69%			2010	107	183	58%	69.84%		
2011	126	179	70%	27.27%	11.33		2011	143	229	62%	33.64%	5.46	
2012	135	193	70%	7.14%	13.58	19.86%	2012	169	261	65%	18.18%	5.91	8.24%
2013	147	201	73%	8.89%	18.7	37.70%	2013	195	282	69%	15.38%	8.04	36.04%
2014	157	208	75%	6.80%	28.68	53.37%	2014	217	301	72%	11.28%	11.6	44.28%
2015	169	219	77%	7.64%	41.65	45.22%	2015	240	323	74%	10.60%	14.32	23.45%
2016	180	231	78%	6.51%	62.23	49.41%	2016	262	349	75%	9.17%	19.4	35.47%
2017	184	239	77%	2.22%	84.39	35.61%	2017	277	370	75%	5.73%	27.41	41.29%
2018	186	242	77%	1.09%	111.97	32.68%	2018	282	381	74%	1.81%	36.68	33.82%
2019	190	248	77%	2.15%	139.35	24.45%	2019	294	394	75%	4.26%	44.14	20.34%
2020	195	258	76%	2.63%	163.86	17.59%	2020	308	419	74%	4.76%	50.95	15.43%
2021	195	262	74%	0.00%	213.92	30.55%	2021	309	427	72%	0.32%	68.9	35.23%
2022 Q3	197	266	74%	1.03%			2022 Q3	303	408	74%	-1.94%		
Rest of the World						Asia and Pacific							
Year	DAU	MAU	DAU/MAU	DAU Growth	ARPU	ARPU Growth	Year	DAU	MAU	DAU/MAU	DAU Growth	ARPU	ARPU Growth
2009	29	62	47%				2009	29	69	42%			
2010	64	156	41%	120.69%			2010	58	133	44%	100.00%		
2011	105	212	50%	64.06%	1.5		2011	109	225	48%	87.93%	2.05	
2012	161	298	54%	53.33%	1.84	22.67%	2012	153	304	50%	40.37%	2.35	14.63%
2013	216	376	57%	34.16%	2.64	43.48%	2013	200	369	54%	30.72%	3.15	34.04%
2014	263	436	60%	21.76%	3.35	26.89%	2014	253	449	56%	26.50%	4.46	41.59%
2015	319	509	63%	21.29%	3.86	15.22%	2015	309	540	57%	22.13%	5.45	22.20%
2016	388	606	64%	21.63%	4.66	20.73%	2016	396	673	59%	28.16%	7.29	33.76%
2017	441	692	64%	13.66%	6.2	33.05%	2017	499	828	60%	26.01%	8.92	22.36%
2018	478	750	64%	8.39%	7.52	21.29%	2018	577	947	61%	15.63%	10.71	20.07%
2019	532	817	65%	11.30%	8.74	16.22%	2019	641	1038	62%	11.09%	12.63	17.93%
2020	598	921	65%	12.41%	8.76	0.23%	2020	744	1199	62%	16.07%	13.77	9.03%
2021	619	945	66%	3.51%	12.26	39.95%	2021	806	1278	63%	8.33%	17.29	25.56%
2022 Q3	638	971	66%	3.07%			2022 Q3	845	1312	64%	4.84%		

In regards to Meta's Family of Apps total users, as of September 30 2022, DAU was 2.93 billion people and MAU was 3.71 billion. This represents a ratio of DAU to MAU of 79%. This level of engagement has remained very stable, in 2019 it was 78%.

## Family of Apps



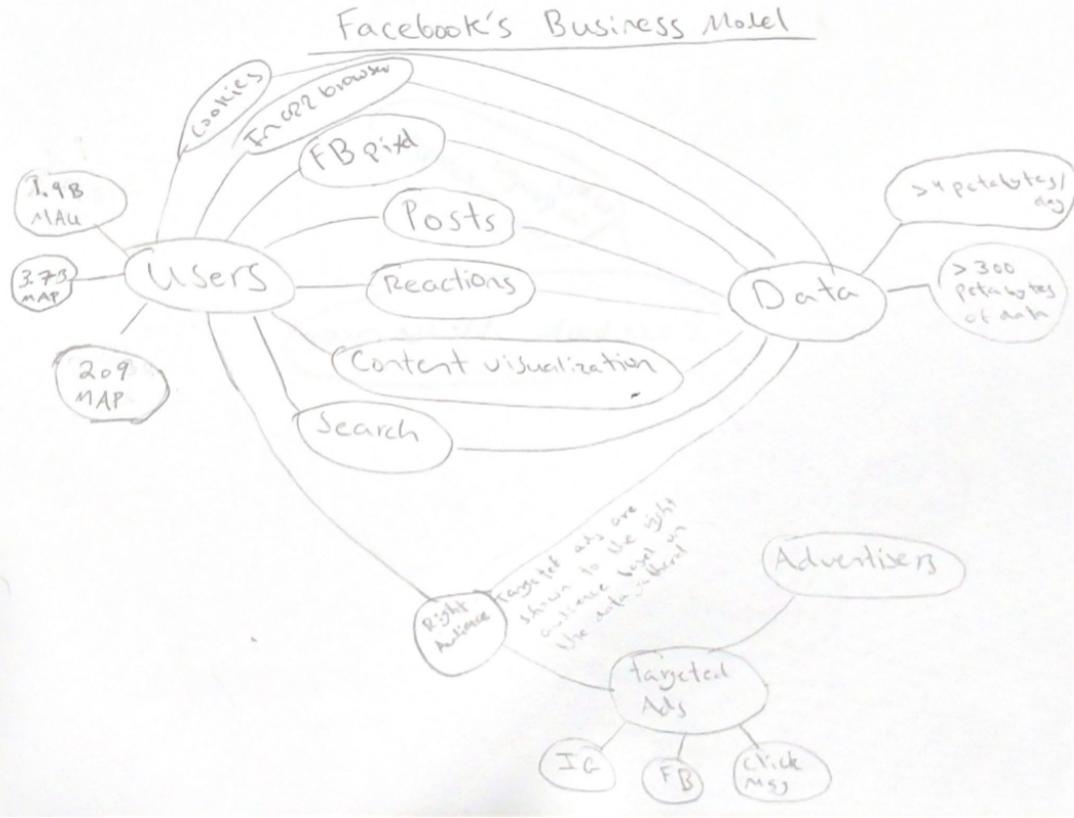
The company also has a virtual and augmented reality segment called Reality Labs. Like Meta's Family of Apps, Reality Lab's objective is to connect people, but through extended reality. This business segment is more like a venture bet and is currently burning through billions of dollars in R&D and selling the hardware at cost or below cost. In 2021 the Reality Labs segment generated \$2.3 billion dollars in revenue but had an operating loss of \$10.2 billion. The company expects to invest heavily in this new business with the hope of creating a new significant revenue stream and virtual reality network effect where they own the hardware and app store. The company's strategy is to bring as many new people as possible to VR with the hope of attracting developers to create more applications, with the hope of attracting more people and so on. The company says that down the line it plans to earn the majority of its revenue from Reality Labs through fees related to transactions inside and of apps. It is very difficult to predict the outcome of this business. For the purpose of this valuation, I will ignore future possible value from this segment but acknowledge its risks and costs. Maintaining a conservative point of view and assuming the possibility that it will not work out.

	Family of Apps			Reality Labs			Total		
	Year Ended December 31,		Year-over-Year % Change	Year Ended December 31,		Year-over-Year % Change	Year Ended December 31,		Year-over-Year % Change
	2021	2020		2021	2020		2021	2020	
(dollars in millions)									
Revenue	\$ 115,655	\$ 84,826	36%	\$ 2,274	\$ 1,139	100%	\$ 117,929	\$ 85,965	37%
Costs and expenses	\$ 58,709	\$ 45,532	29%	\$ 12,467	\$ 7,762	61%	\$ 71,176	\$ 53,294	34%
Income (loss) from operations	\$ 56,946	\$ 39,294	45%	\$ (10,193)	\$ (6,623)	(54)%	\$ 46,753	\$ 32,671	43%
<i>Operating margin</i>	49%	46%		(448)%	(581)%		40%	38%	

## Business

Meta earns the majority of its revenue by allowing businesses to display targeted ads to its user base. This means that Meta's business model centers around its user base. The more users the company has, the more attractive its proposition is for marketers and the more ads it can display. Furthermore, the level of engagement of its user base is very important as well. Increased engagement allows for more timespent, which allows for the possibility to display more ads. Finally, the company's user base and their engagement is also very important because while using Meta's products they generate data. Meta analyzes this data and allows for targeted ads. Which means that Meta is able to effectively show the right ad to the right user.

“Some people think that Meta sells user data to third parties to generate revenues. It does not. It processes the data to make it information and uses that information to better target advertising and generates revenues, as a consequence.” (Damodaran, The Facebook Feeding Frenzy: Time for a Pause!).



### *How it Works Visually*

This business model is incredibly profitable. In 2021 and 2020, for example, it had an operating margin of 49% and 46%, respectively.

	Family of Apps		Year-over-Year % Change	
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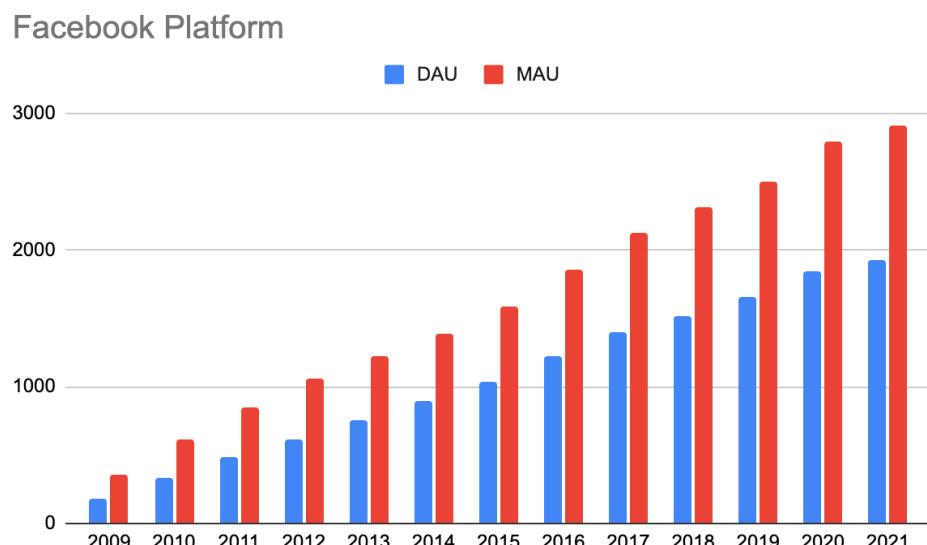
## Metrics

Understanding Meta's core business, we see that the metrics that most impact its business are its user base which can be represented by monthly active users and daily active users.

Likewise, the level of engagement of Meta's user base is represented by the relationship of daily active users to monthly active users. Finally, the monetization of Meta's user base is represented by average revenue per user. The following graphs show these metrics from 2009 to 2021. It is important to note that the first section of these graphs includes only Facebook users.

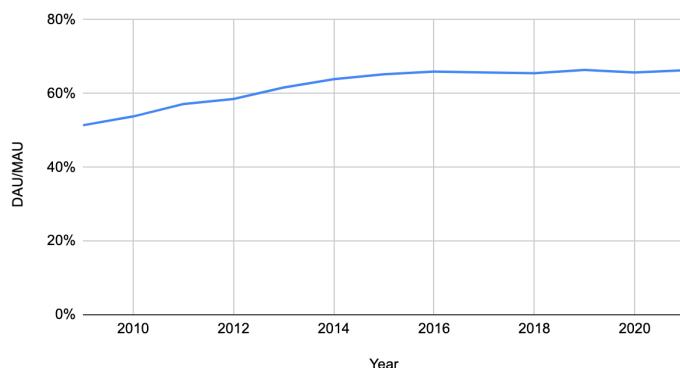
Based on the data below we observe that user engagement levels are solid, with 79% of monthly active users using at least one of Meta's apps daily. And 66% of monthly active users of the Facebook platform using it daily. Although user growth has stalled in the US and Canada and Europe, the company's user base and its engagement has not slipped. For example, in 2021 the company reported 2.9 billion monthly active facebook users and 3.6 billion monthly active people for its entire family of apps segment. Finally, average revenue per user is at its highest in both reporting segments, the increase in revenue in 2021 is probably due to the pandemic and the increased usage of the company's services.

### **Facebook Platform**



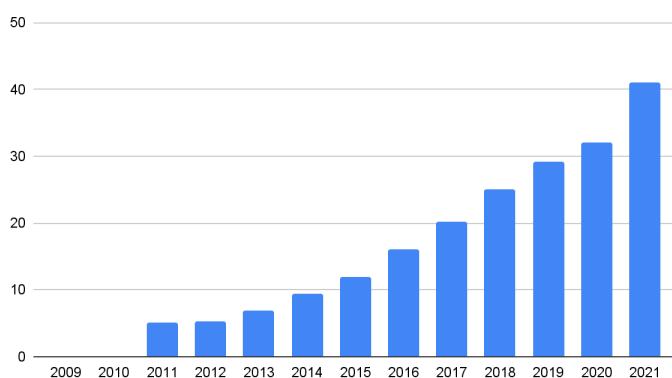
*Daily and Monthly Active Users in Millions (Facebook Platform)*

DAU/MAU vs. Year



### *Stickiness of the Facebook Platform*

Average Revenue Per User (Facebook)

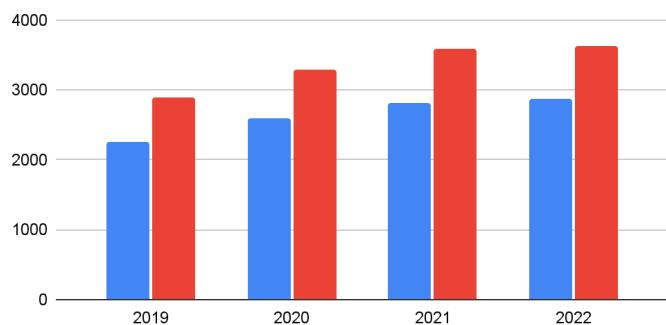


### *Average Revenue per User (Facebook Platform)*

## Family of Apps

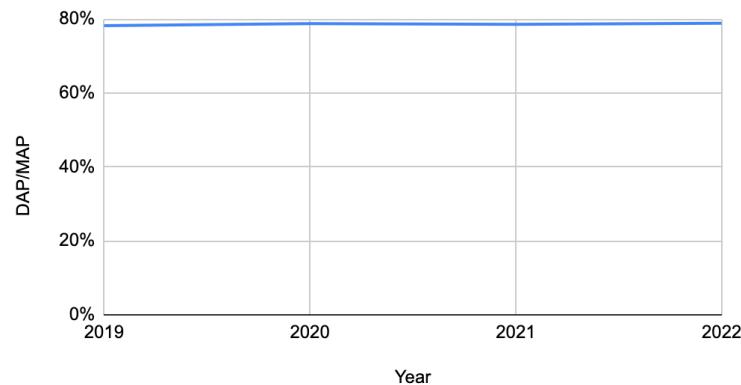
Family of Apps

■ DAU ■ MAP



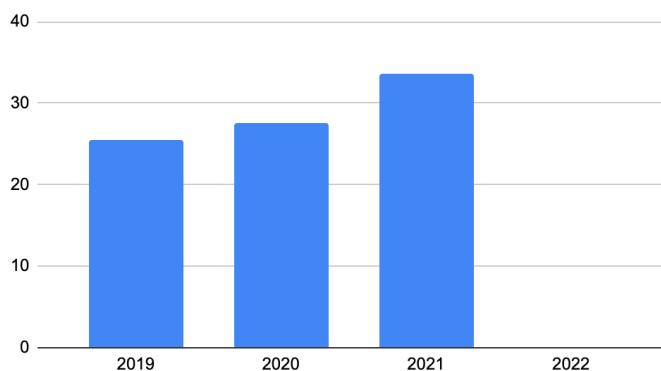
### *Daily and Monthly Active People in Millions*

### DAP/MAP vs. Year



*Stickiness of the Meta's Products*

### Average Revenue Per Person (FOA)



*Average Revenue per Person*

## **Understanding Why and How Users Use Meta's Products**

### **Objetive**

The goal of this section is to understand why social media became so popular in order to assess its durability. Furthermore, I want to understand why Meta became the number one social media platform and how it appeals to its users, in order to grasp the strength and vulnerability of its products.

### **Why do people use social media?**

Most people use social media to connect with people and things they care about. This means maintaining interpersonal relationships with weak and strong ties. As a result, I think several factors subconsciously contribute to the use of social media.

The first being social proof and bandwagon. In today's world, because everyone uses social media, if you don't do it, then you feel left out and people see you as the odd ball. Just think about the friend who doesn't have Facebook or Instagram and meets someone and they ask if they have social media, the reaction of the person asking for the account after learning that your friend does not have one is negative, thinking "weird". Most people don't want to feel like this, so they jump on board. Bandwagon also creates a fear of missing out. People like knowing what is happening around them and learning about the cool part or thing their friends are up to.

Another psychological factor I can point to that contributes to social media usage is status signaling. Most people want their circle of friends and acquaintances to know that they went on X trip, won X thing, and so on. People really like sharing this information and feeling rewarded when others acknowledge these things through "likes". Increasing a person's self-esteem and causing the action to repeat itself in the future because people will repeat what has worked for them in the past.

Another really important factor that contributes to social media usage is social identity. Through social media, we can show the best parts of ourselves and create the identity we want others to see. This desire increases engagement because people post more about their lives.

Moreover, social media also appeals to the psychological force of belonging. Through social media, people can connect with their friends on what each of them are doing. As Baumaister and Leary argue, humans seek to engage in positive interactions with others within the context of long-lasting relationships.

On the other hand, people also use social media for entertainment. This includes reading the news, finding new products, and filling spare time. One reason for Tik Tok's success was just this. People wanted to entertain themselves and they did it through short form video.

## **Why did Meta become the number one social media platform?**

This is a story of network effects. When Facebook began, Zuckerberg knew that social media would be a winner takes all industry because of the nature of network effects. The more people used Facebook, the more valuable the network became for each person using it — and the less they would be willing to move to another network where they would have to create a new friend graph from scratch. Likewise, the more people used Facebook, the more attractive it was for potential users and businesses. As such, Facebook focused on attracting the most amount of users from the start.

As Facebook grew, psychological forces like bandwagon and social proof also attracted new users. On the same note, factors like identity, self-esteem, status signaling, and belonging, captivated users to continue to use the company's platform.

More users and increased engagement meant more sharing of personal information. With this information and content, Facebook benefited from the power of economies of scale. This meant that the Facebook algorithm had more inventory content to curate users' content feeds, increasing the product's value to each user. Moreover, the company's algorithms could also determine what the user was more likely to engage with at any time. Increasing the product's value to each user and businesses alike.

Also, the scale of the network allowed the company to continuously create new network effects that made it more attractive for users and defend itself from competitors. An example of this is Facebook Marketplace. This feature provides yet another reason to be on Facebook which means more time users spent.

Moreover, Meta's products allow for habit formation, which makes them very addictive. Users create a habit to use these products on their spare time. As a result, if a user has a habit of opening Facebook or Instagram or WhatsApp when they are bored, then they are likely to continue to do it in the future. This behavior captivates users to Meta's products because habits are hard to change.

Finally, the scale of the network has allowed the company to replicate features from competitors. The prime example of this is what Instagram did to Snapchat with "Stories". Or "Reels" to combat Tik Tok. This ability to easily copy features and add them to its existing platforms is very powerful because the leverage that the company is operating with is huge thanks to the size of the company's user base.

## **What drives creators or power users to use social media?**

Content creators use social media because it's a very easy way to reach their existing audience. Creators can also build followings to support their work. This means that the factors that drive content creators to a platform are the size of the user base, their level of engagement, and the ability for them to scale up and build a big following. This is one of the success factors

of Tik Tok. Through its discovery engine, Tik Tok allows creators to go viral and create large followings.

### **Why do creators use Meta's products?**

Instagram and Facebook are attractive to creators because of the large user bases and engagement these platforms have. In addition, as a content creator it is very easy to collaborate with brands and monetize your work through promoted content via posts or stories.

Finally, as creators build large followings in these platforms, they become captive to them. It is very hard to move to another platform and take your following with you. As a result, creators continue to use Meta's platforms.

In summary: User base, engagement, following, monetization through collaboration with businesses

### **What drives businesses to advertise on Meta?**

If businesses want to advertise on social media, then they need to include Meta. Similar to creators, Instagram and Facebook are attractive to businesses because of the potential to reach massive amounts of people. Furthermore, the ability to advertise to the correct audience is very appealing for marketers. Thus, because Meta holds great amounts of data, it is very attractive for marketers to advertise on its platform because they can create targeted ad campaigns that are highly effective.

Furthermore, as businesses grow on Facebook or Instagram, they create a following of customers or people who like their products or services. This captivates businesses and makes it hard to switch to a new platform where they will need to create their following from scratch.

In summary: User base, engagement, following, user data that enables them to target the right audience

### **How do businesses advertise on Meta?**

Most businesses advertise through Meta's self service ad platform called Business Manager where businesses can launch and manage ad campaigns.

# **Understanding User Data Collection**

## **Objetive**

The goal of this section is to understand how Meta obtains, stores, and uses user data in order to evaluate necessary investments to deliver their product at scale, the impact of future regulations and the competitive advantage that this data inventory represents for the company.

### **How does Meta obtain user data?**

Meta obtains user data from in app activity like sharing of information through posts or engaging with content through likes, comments, and sharing. Also, the company has an in app browser that allows the company to collect valuable data about its users. Finally, Meta is able to collect data outside of its app through the pixel. Millions of companies and organizations around the world have activated the Facebook pixel on their websites. The Facebook pixel records the activity of Facebook users on these websites and passes this data back to Facebook. It is estimated that Meta collects about 4 petabytes of data per day, this means 4 million gigabytes of data each day.

### **How does Meta store user data?**

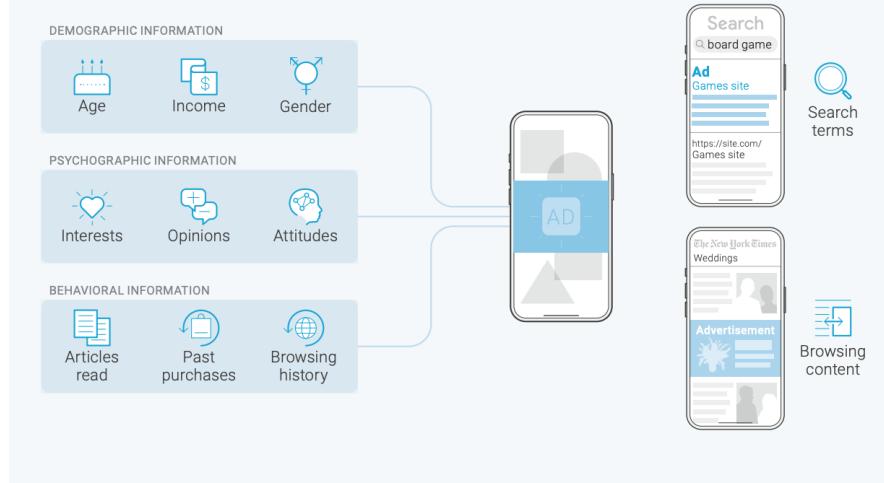
Meta stores its data in what is known as the Hive. The Hive is the company's collection of data centers which contain about 300 petabytes of data. Data centers are made up of interconnected servers or computers that are used to store and process large amounts of data.

### **How does Meta use user data?**

Meta analyses user data and delivers what its algorithm thinks is the correct content. This means that Meta's algorithm recommends content to users it thinks they will like to increase and maintain engagement. This also means that Meta's algorithms effectively the right ads to the right users. Thus, if a person created an audience for people interested in dogs to sell a dog product, Meta's algorithm uses user data to show this ad to the people that are interested in dogs.

### How Ad Targeting Works

Advertisers typically attempt to direct ads to specific groups of people that are appropriate audiences for the products and/or services being advertised. These targeted ads may be contextual, in response to user input such as a search query, or based on demographic, psychographic, behavioral, or other personal information about the user.



### How does Meta monetize user data?

Meta allows businesses to display ad targeted ads to its user base. This means that Meta matches the ad's audience to the correct person based on the data Meta has collected and analyzed about them.

### What is the current regulation and climate regarding data collection?

Regulations regarding privacy and data collections have become stricter in recent years. Thanks to incidents like Cambridge Analytica data breach and an increase in concern of the population regarding how much data was being collected about them.

For example, in 2018 the European Union introduced the General Data Protection Regulation, which seeks to protect user privacy by making it mandatory for users to consent for their personal data to be stored and transferred. Other import clauses include the right for the provider to erase their data. The right to object the use of personal data for the purpose of profiling. And the right for data portability from one service provider to another. These changes represents a vulnerability to the effectiveness of Meta's ad targeting as Meta's ability to match an ad's audience to the correct user decreases, making ads less attractive for marketers and causing revenue to decrease. However, operations from Europe have continued to grow. For example, in 2021 ad revenue was \$29,000 million USD, compared to \$17,000 USD in 2019.

The EU is not the only governmental body imposing more regulation on privacy and data collection. In 2019 the FTC gave Meta a \$5 billion penalty for violating user privacy. As a result

of this, Meta was forced to establish an independent privacy committee that overrides Mark Zuckerberg's decisions affecting user privacy. Furthermore, Meta must conduct a privacy review of every new or modified product, service, or practice before it is implemented, and document its decisions about user privacy. The implications of this is that Meta will need to invest more capital into data security and privacy and content review initiatives, which will reduce Meta's profitability.

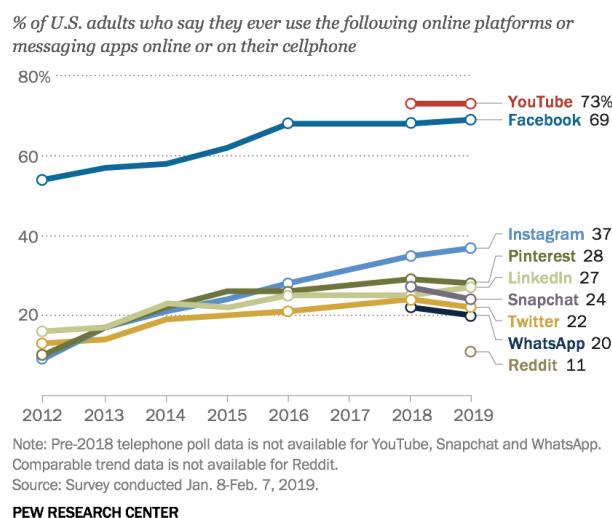
### **Do users care that their data is being collected?**

According to a survey done by PEW research center,

- 74% of users in the US say they do not know the platform classifies their interests
- 51% of users in the US say they are not comfortable with Facebook compiling this information
- 45% of Europeans worry about their privacy

### **Are users likely to stop using Facebook after knowing they are being tracked?**

Based on the levels of user engagement after the Cambridge Analytica scandal, users continue to use Meta's products. Furthermore, knowing that Meta tracks their data has not significantly decreased engagement or the company's user base.



## **Understanding the Risks to Meta's Core Business**

### **More regulation regarding privacy and data collection**

- California Consumer Privacy Act
- General Data Protection Act

### **Apple and google changes that limit user tracking**

- Apple's App Tracking Transparency feature that requires users to allow for apps to share their data with other companies
- Google's Privacy Sandbox

### **What is doing Meta to adapt to Apple's ATT and Google's potential privacy changes?**

Objective: Digital advertising must evolve to become less reliant on individual third-party data

Privacy-enhancing technologies (PETs) for ads, which will minimize the amount of data gathered and processed, in order to help protect personal information, while still facilitating insight into campaign performance. Meta hopes that with PETs a person's original piece of data becomes anonymized and aggregated with other people's information. The new piece of data can then be used by Meta and allow advertisers to run personalized ads and measure performance.

The implications of Meta's effort to adapt to a new era of advertising are more R&D spending which will decrease operating margins. The effectiveness of these efforts is still unproven.

### **Future fines for privacy violations**

Cambridge Analytica: 725 million

GDPR Related Fines: 1,077 million (2022-2023)

ETid	Country	Date of Decision	Fine [€]	Controller/Processor	Quoted Art.	Type	Source
ETid-1543	IRELAND	2023-01-04	390,000,000	Meta Platforms Ireland Limited	Art. 5 (1) a) GDPR, Art. 6 (1) GDPR, Art. 12 GDPR, Art. 13 (1) c) GDPR	Non-compliance with general data processing principles	<a href="#">link</a>
ETid-1502	IRELAND	2022-11-25	265,000,000	Meta Platforms Ireland Limited	Art. 25 (1), (2) GDPR	Insufficient technical and organisational measures to ensure information security	<a href="#">link</a> <a href="#">link</a>
ETid-1373	IRELAND	2022-09-05	405,000,000	Meta Platforms, Inc.	Art. 5 (1) a), c) GDPR, Art. 6 (1) GDPR, Art. 12 (1) GDPR, Art. 24 GDPR, Art. 25 (1), (2) GDPR, Art. 35 GDPR	Non-compliance with general data processing principles	<a href="#">link</a> <a href="#">link</a>
ETid-1094	IRELAND	2022-03-15	17,000,000	Meta Platforms Ireland Limited	Art. 5 (2) GDPR, Art. 24 (1) GDPR	Insufficient technical and organisational measures to ensure information security	<a href="#">link</a>

## Are there current product risks?

- Competition from Tik Tok decreases engagement
- Monetization of Reels does not work while time spent increases and decreases for more profitable placements. As seen on the image below:

Instagram Reels:

Reach	Impressions	Cost per result
2,160	2,195	£1.24 Per Link Click

Instagram Stories:

Reach	Impressions	Cost per result
1,684	1,702	£1.17 Per Link Click

Instagram Feed Posts:

Reach	Impressions	Cost per result
3,162	3,652	£0.64 Per Link Click

Image Credits: GLAMLAB

- 50% of the time spent on Meta's platforms now involves video
- Meta is monetizing overlay ads in Reels with a revenue share of 55% to the creator and 45% to Facebook

### **How is Meta protecting itself from product risk?**

- Coping features from competitors like
  - Short video “Reels” from Tik Tok
  - Stores from Snapchat
  - IG candid from Be Real

### **What can cause a negative network effect?**

- Content Pollution
  - Users feed is cluttered by content they are not interested in
  - If a person’s social circle is already on Facebook or Instagram, then the value that a new user has does not mean much to the existing user. However, content this new user generates can clutter the existing user’s feed

### **How does Meta protect itself from a negative network effect?**

- Meta is expanding its AI capabilities to improve its discovery engine with the objective of recommending the right content to the right user

## **Understanding Revenue and Future Growth**

### **Objetive**

The goal of this section is to understand what drives revenue in order to accurately estimate what revenue going foward.

#### **What drives revenue?**

Historically, user growth has been the primary driver of revenue because more users make the platform more attractive for advertisers and allows Meta to display a greater number of ads. The type of ad placement and its monetization capabilities also influence the average price per ad and thus the amount of revenue Meta is able to earn. Finally, the maturity of the ad market also affects the potential revenue Meta can earn in a given geography. For example, historically, Meta has surfed the transition from offline to digital advertisement because of their 25% marketshare in the digital ad market. This meant that in the US and Europe, where the advertisement markets where more mature, more capital and active marketers started using Meta to advertise online. Thus, we can say that the following factors drive revenue: user base, user engagement, advertising market, type of ad placement.

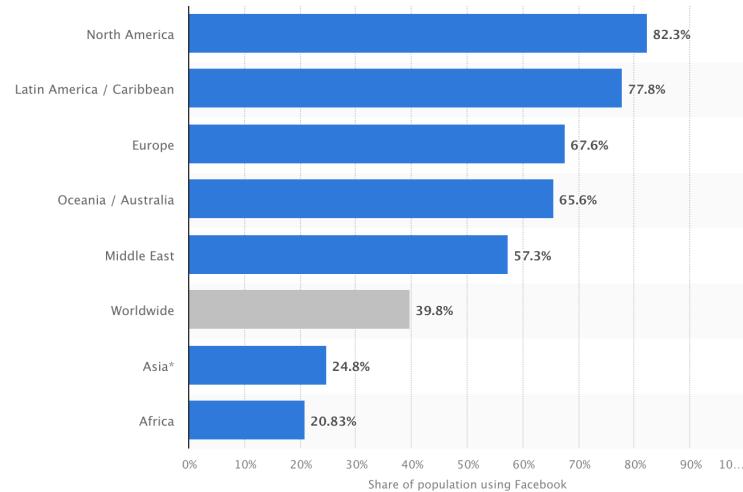
#### **What drives user growth?**

User growth has historically been driven by an increase in internet users thanks to the adoption of smartphones. Current mobile internet users are 4.32 billion. There are around 5.85 billion people over 14 years old in the world. Which means that 1.5 billion people capable of using Meta's products lack access to the internet and represent an opportunity for growth.

#### **Is it likely that Meta's user base will grow in North America and Europe?**

Penetration in US and Canada, and Europe is very high and user growth is expected to be minimal or slightly negative going forward. For example, 87% of people above the age of 14 use Facebook in the US and Canada. Moreover, 64% of people above the age of 14 use Facebook in Europe. Although the percentage of people who use Facebook in Europe is lower than in North America, I expect this number to remain constant because 95% has internet access.

## What regions can we expect future user growth from?



Based on the above graph we can observe that the regions with the most potential for user growth are Africa and Asia. The table below lists the regions and countries most likely to contribute to user growth in the future.

Region	Africa	India	Pakistan	Bangladesh
Internet Penetration	43%	43%	25%	31%
Population (millions)	1,400	1,380	273	164
Current Facebook Users (millions)	244	329	43	44
Expected number of internet users by 2028 according to Statista (millions)	750	1,273	76	98
% of people who have internet and use Facebook.	60%	60%	60%	60%

Based on current ratio of worldwide Facebook MAU and people with internet access				
Expected number of Facebook users in 2028 (millions)	450	760	45	60
Growth (millions)	206	431	2	16

If Meta remains the dominant player in social media, then I estimate that Meta will add about 655 million users in the next 5 years. Which means around 130 million users per year.

### Why has revenue been higher in the US and EU vs other parts of the world?

Revenue has been higher in the US and Canada, and Europe thanks to the size and maturity of those online advertising markets. For example, ARPU in US and Canada was 12 times higher than in Asia in 2021.

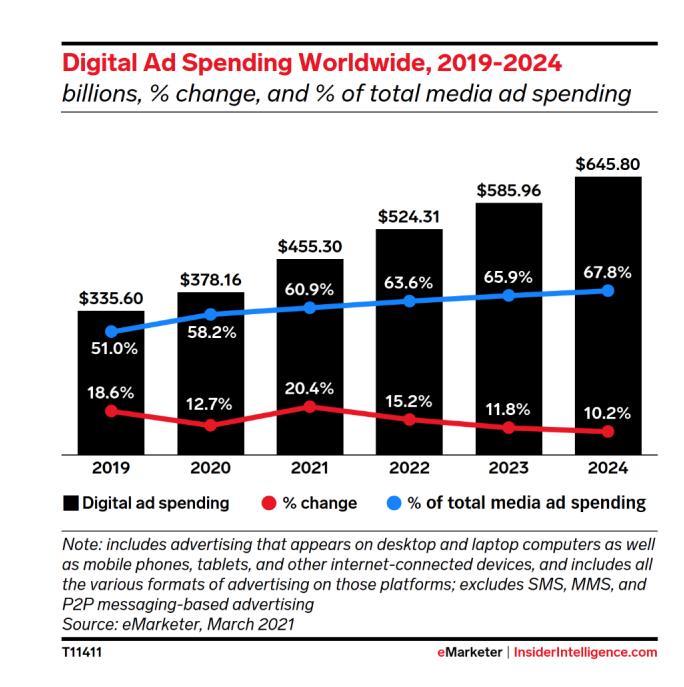
	Year Ended December 31,		
	2021	2020	2019
United States and Canada <sup>(1)</sup>	\$ 51,541	\$ 38,433	\$ 32,206
Europe <sup>(2)</sup>	29,057	20,349	16,826
Asia-Pacific	26,739	19,848	15,406
Rest of World <sup>(2)</sup>	10,592	7,335	6,259
Total revenue	\$ 117,929	\$ 85,965	\$ 70,697

(1) United States revenue was \$48.38 billion, \$36.25 billion, and \$30.23 billion for the years ended December 31, 2021, 2020, and 2019, respectively.

(2) Europe includes Russia and Turkey, and Rest of World includes Africa, Latin America, and the Middle East.

### Is advertising spending growing worldwide?

Yes, digital ad spending continues to grow at double digit rates world wide, however, growth is expected to slow down going forward.



## Is it likely that advertising spending in Asia and Rest of the World will increase in the future?

A report by MGNA done in December 2021 expects digital media advertising revenue to grow at low double digits in the near future. Asia is expected to be one of the regions with the most growth.

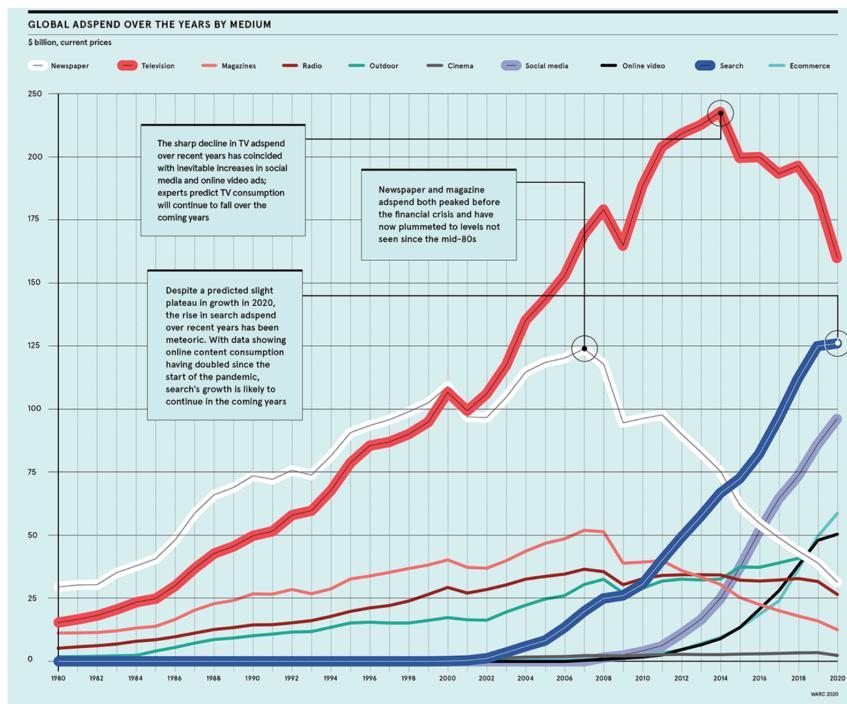
*“The second largest ad market, China (15% of global advertising revenues) will grow below average (+8%) due to endemic headwinds: stricter and less predictable regulatory environment for digital media giants, severe COVID lockdowns under the “zero COVID” policy. Among other top 15 advertising markets the strongest growth forecast comes from India (+15%) and South Korea (+11%) while Germany and Sweden (both +6%), and Italy (+3%), will suffer the most in the post-Ukraine economic environment.” (SHAW)*

The growing adoption of digital advertising by both local businesses and consumer brands and the continued transition towards digital advertising continues to drive this growth. Digital formats now represent 65% of total advertising sales worldwide. Search will remain the largest advertising format (\$265 billion), ahead of Social (+11% to \$158 billion).

	<b>2022 Growth</b>	<b>2022 Prev.</b>	<b>2022 Size (\$BN)</b>	<b>2023 Growth</b>
GLOBAL	9.2%	12.0%	816.1	6.3%
EMEA	7.5%	12.2%	195.6	5.8%
NA	10.8%	12.4%	342.1	5.7%
LATAM	9.6%	10.7%	23.9	6.7%
APAC	8.4%	11.2%	254.6	7.4%
<b>DIGITAL MEDIA</b>	<b>12.5%</b>	<b>17.0%</b>	<b>533.6</b>	<b>10.8%</b>
SEARCH	14.8%	17.3%	265.1	11.5%
SOCIAL	10.6%	18.4%	158.4	11.0%
VIDEO	15.8%	22.2%	67.7	15.5%
BANNERS, OTHER	1.5%	2.0%	42.4	-1.6%
<b>TRADITIONAL MEDIA</b>	<b>3.6%</b>	<b>3.8%</b>	<b>282.4</b>	<b>-2.3%</b>
TELEVISION	3.9%	3.5%	175.3	-3.7%
RADIO	3.6%	5.2%	29.9	0.2%
PRINT	-2.6%	-1.2%	45.1	-4.5%
OOH	10.4%	10.1%	30.4	5.7%
CINEMA	62.4%	66.9%	1.8	15.3%

Source: MAGNA Ad Forecasts, June 2022. PREV= Previous Global MAGNA update (December 2021)

### *Global Advertising Spending by Region*



*Global Advertising Spending from 1980 to 2020*

## What is the outlook for social advertising?

Meta currently has around 72% of the worldwide social advertising market. A report by MAGNA highlights how advertising spending going forward will move slightly away from social media and towards keyword formats and other campaign strategies due to the following headwinds.

Average Price per ad increased by 24% in 2021

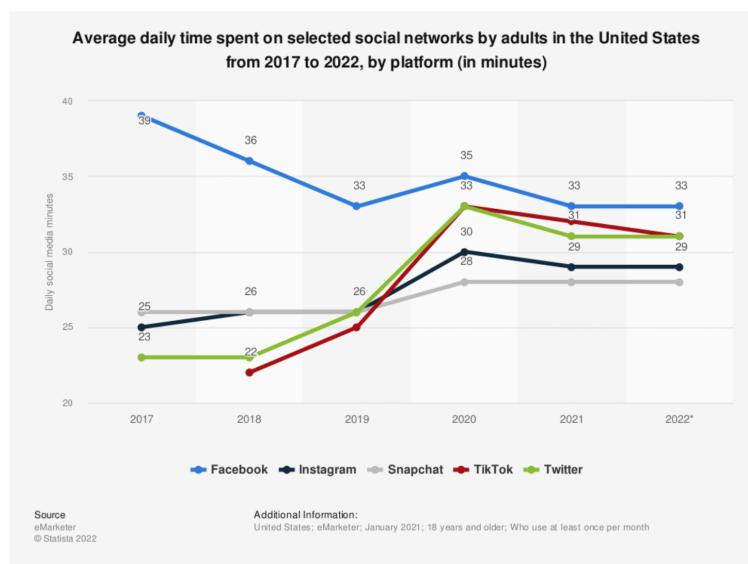
In 2021, the number of ads delivered increased by 10%

### Client Saturation

Millions of small businesses started advertising on social media during and after COVID 19. This rise in demand can be observed by the increase of 24% in the average price per ad. MAGNA expects that marketing campaigns in social media by businesses world wide will continue but at a lower pace.

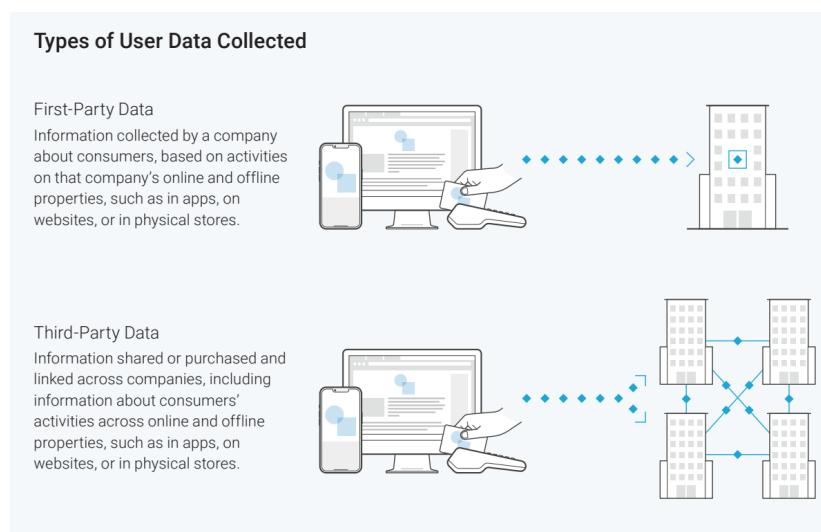
### Audience Saturation

The plantourning in average time spent per user and the high penetration of Meta in North America and Europe suggest that the volume of potential ads to display in these regions will remain the same or slightly decline going forward. This means that future growth in ad volume will have to come from less mature advertising markets.



## How much does Meta depend on third-party data for its advertising business?

Apple privacy changes have allowed millions of social media app users to opt out from sharing valuable data. This data comes in many forms and is gathered in different ways. It is classified as first-party data and third-party data. First-party data refers to data gathered by a company on consumer's activities on their online or offline properties. Third-party data refers to data gathered on consumer activities from another company's apps. Third parties share or sell this data with other companies. ATT requires users to give permission before companies can start linking data collected from one app with data collected from other companies or sharing data with data brokers. It is worth noting then that ATT only applies to third-party data. This means that ATT does not affect Meta's ability to collect and use first-party data even when users decline permission for tracking. Meta can do this with first party data collected either within an app or across different apps owned by them.



Under ATT companies are required to ask user's permission before:

- Displaying targeted ads in an app based on user data collected from apps or websites owned by other companies;
- Sharing device information with a data broker or with a third-party ad network that uses the data to retarget those users in another developer's app or find similar users
- Including code from a third party in an app that combines user data from the app with user data from other developers' apps to target advertising or measure advertising efficiency

Based on the above, it is worth analyzing how much Meta's advertising business depends on third-party data to understand if Apple privacy changes really do affect Meta's targeting capabilities.

Meta collects information from users

- The activity and information they provide (**first party data**)
- Friends, followers, and other connections they have or interact with (**first party data**)
- App, browser, and device information (**third-party data**)
- Information from partners, vendors, and third parties (**third-party data**)
  - Meta Pixel
  - Apps they use
  - Games they play
  - Purchases and transactions you make
  - Ads they see and how they interact with them

Meta shares information with advertisers and audience network publishers

- Meta provides advertisers with reports about the number and kinds of people who see and engage with their ads.
- Meta Audience Network lets advertisers place ads that will be published on apps outside of Meta.

Meta no longer works with third-party data providers to offer their targeting segments directly on Facebook. However, businesses may continue to work with data providers.

Businesses who advertise to you may be using a list of people that they've gotten, or gotten the ability to use, from third parties that they work with for their marketing efforts. This change means that Facebook no longer offers its advertisers audiences from third-party data providers as a targeting option.

Publishers that receive ads on their website's and apps using data from Meta (a third party) will be significantly affected.

Based on the above, it is difficult to estimate Meta's dependence on third party data to match the appropriate user with the ad's audience. From one perspective, we can observe that Meta collects a lot of first-party data through the engagement of its users and how they use their services. However, Meta also depends on data from third parties to optimize its ads, like data obtained through the pixel. This means that businesses have more trouble sharing information to Meta and allowing Meta to optimize its targeting when doing an ad campaign. This also means that advertisers have less insight into how their ads are performing because users need to agree to Apple's ATT for their business to share that data back to Meta.

## How big is the impact of Apple's privacy changes?

Meta CFO Dave Wehner said in the company's earnings call that they expect revenue to be affected by \$10 billion going forward. The effects these changes are having mainly affect how businesses measure ad performance. Not being able to precisely determine which ads are working, businesses will reduce advertising spending.

### Based on the above, is it likely that revenue will increase in the next 5-10 years? At what rate?

Revenue is likely to increase in the next 5 years at a rate of X% due to an estimate increase of 450 million users in Asia Pacific and 200 million users in rest of the world. Moreover, increases in digital ad spending worldwide and the maturity of ad markets like Asia will increase digital ad spending. Meta's position as the leader in digital advertising with 25% market share and 72% worldwide social advertising marketshare will enable it to capitalize on this growth. The following table summarizes my world wide digital advertising estimates from 2022 to 2028.

Year	Digital Ad Spending Worldwide (billions)	Meta's Marketshare (billions)	Meta's share (billions)	Growth
Base Year 2022  Using company's estimates for 2022 revenue	524	22%	114	
2023	585	22%	128	12%
2024	645	22%	142	11%
2025	696	22%	153	8%
2026	750	22%	165	8%
2027	811	22%	178	8%
2028	876	22%	192	8%

## Understanding Meta's Cost Structure

To understand Meta's cost structure, it is important to separate the operating segments of Reality Labs and Family of Apps. Meta does not report in detail its costs per segment, but do report overall costs and operating income. Therefore, I will try to estimate the costs related to each segment to better estimate future operating costs going forward. Until 2018, Reality Labs used to have minimal contributions to consolidated results. I consider 2010-2018 as a guide for the Family of Apps segment in later years. My estimates produce the following results.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Revenue	1,974	3,711	5,089	7,872	12,466	17,928	27,638	40,653	55,838	70,697	85,965	117,929
Cost of Revenue	493	860	1364	1,875	2,153	2,867	3,789	5,454	9,355	12,770	16,692	22,649
As % of revenue	25.0%	23.2%	26.8%	23.8%	17.3%	16.0%	13.7%	13.4%	16.8%	18.1%	19.4%	19.2%
FOA COGS	493	860	1364	1,875	2,153	2,867	3,789	5,454	9,355	10913.9	13273.0	18208.2
FOA COGS as % of related revenue	25.0%	23.2%	26.8%	23.8%	17.3%	16.0%	13.7%	13.4%	16.80%	15.44%	15.44%	15.44%
Gross Profit								35,199	46,483	57,927	69,273	95,280
Gross Profit Margin								86.60%	83.20%	82.9%	80.58%	80.79%
R&D	144	388	1,399	1,415	2,666	4,816	5,919	7,754	10,273	13,600	18,447	24,655
As % of revenue	7.3%	10.5%	27.5%	18.0%	21.4%	26.9%	21.4%	19.1%	18.4%	19.2%	21.5%	20.9%
FOA R&D	144	388	1,399	1,415	2,666	4,816	5,919	7,754	10,273	12,635	16,117	20,818
FOA R&D as % of related revenue	7.3%	10.5%	27.5%	18.0%	21.4%	26.9%	21.4%	19.1%	18.4%	18.2%	20.4%	18.8%
Sales and Marketing	167	393	896	997	1,680	2,725	3,772	4,725	7,846	9,876	11,591	14,043
As % of revenue	8.5%	10.6%	17.6%	12.7%	13.5%	15.2%	13.6%	11.6%	14.1%	14.0%	13.5%	11.9%
FOA S&M	167	393	896	997	1,680	2,725	3,772	4,725	7,846	9,507	11,175	12,972
FOA S&M as % of related revenue	8.5%	10.6%	17.6%	12.7%	13.5%	15.2%	13.6%	11.6%	14.1%	13.4%	13.0%	11.0%
General and Administrative	138	314	892	781	973	1,295	1,731	2,517	3,451	10,465	6,564	9,829
As % of revenue	7.0%	8.5%	17.5%	9.9%	7.8%	7.2%	6.3%	6.2%	6.20%	14.80%	7.60%	8.30%
FOA G&A	138	314	892	781	973	1,295	1,731	2,517	3,451	9869.0	5938.3	8096.2
FOA G&A as % of related revenue	7.0%	8.5%	17.5%	9.9%	7.8%	7.2%	6.3%	6.2%	6.20%	14.1%	7.0%	7.0%
FOA EBIT reported										28,489	39,294	56,946
FOA EBIT calculated										20,203	24,913	27771.5
Margin calculated										49.7%	44.6%	39.3%
												44.6%

*Meta's Family of Apps Cost Structure from 2010 to 2021*

- To estimate 2019-2021 cost of revenue as a percentage of revenue I calculated the average cost of revenue as a % of revenue from 2014 to 2018. I used 2014 as a starting point because it better reflects Meta's profitability as a result of the adoption of facebook news feed ads. In 2014 news feed ads were introduced and revenue significantly increased thanks to better engagement and a higher price per ad for this ad type.
- To estimate 2019-2021 for R&D, I estimated that for 2019-2021 R&D from family of apps represented about 95% of total R&D from 2019-2020 and 90% of total R&D for 2021
- To estimate 2019-2021 for Sales and Marketing, I calculated the average as a % of revenue from 2013 to 2018
- To estimate 2020-2021 for General and Administrative, I calculated the average as a % of revenue from 2013 to 2018 and used this number to estimate 2020 and 2021 results. To estimate 2019 I estimate that 95% came from the family of apps group.

- My estimates align with the reported EBIT for the years 2019-2021

### **What constitutes cost of revenue?**

Cost of revenue represents expenses associated with the delivery and distribution of Meta's products: facebook, facebook messenger, instagram, and whats app. This means that cost of revenue expenses are mainly related to the operation of data centers where these applications are hosted and data is stored. The expenses related to the operation of data center include:

- Server equipment depreciation
- Rent
- Energy and bandwidth costs
- Salaries and share-based compensation for related employees

In 2021, depreciation from server and network equipment represented 21.6% of total cost of revenue.

### **Is cost of revenue likely to rise or decrease in the future?**

Cost of revenue is likely to rise in the near future due to the depreciation and operating costs of new data centers. Recent significant increases capex as compared to revenue growth mean that in the near future cost of revenue as a percentage of revenue will likely be greater than past results. Long term, because user growth is likely to flatten and revenue will grow at mid single digits, I expect less need to build new data centers, and as such I estimate that cost of revenue as a percentage of revenue to be closer to average past results at around 16% to 18%.

## **Understanding Meta's R&D Expenses**

### **What constitute R&D expenses?**

Research and development expenses consist primarily of salaries and related expenses which include share-based compensation for technical employees.

### **What drives R&D expenses**

Headcount growth is the main driver of R&D expenses.

### **Are R&D expenses likely to rise in the future?**

Although R&D expenses are going to be greater as a % of revenue in 2022, long term I expect R&D expenses to be similar to the average result between 2013 and 2021. I expect R&D as a % of revenue to come back down to historical levels because the company fired 11% of its work force in Q4 of 2022.

### **Based on the above, what is an appropriate estimate for R&D for the FAO segment as a percentage of revenue going forward?**

- Average R&D expenses as a % of revenue from 2013 to 2021: 20.3%

## **Understanding Meta's Reinvestment Needs**

Reinvestment needs are measured as reinvestment needs in longed lived assets which equal necessary Capital Expenditures minus Depreciation and Amortization; Plus reinvestments in short lived assets which represent changes in Non-Cash Working Capital. When calculating reinvestment needs in long lived assets we deduct D&A because this expense has already been included in calculating Operating Income. Furthermore, we add changes in Non-Cash Working Capital because it represents cash being tied up in the businesses. Cash is excluded because excess amounts of cash can be invested in marketable securities that earn a fair rate of return, therefore they are not wasting assets.

### **What constitutes CAPEX?**

Meta's CAPEX mainly constitute de construction and maintenance of data centers, servers, network infrastructure and office buildings.

### **What drives CAPEX?**

User growth and engagement are the main drivers of data centers. More users engaged means more data, which means more need for storage capacity. Going forward, I expect user growth to slow down which will cause necessary capital expenditures to decrease.

### **Capital Expenditures vs Depreciation**

Meta has been in a heavy-capex cycle for the past years due to user growth and high levels of user engagement. As indicated by Capex to depreciation ratio which has been consistently above 1.9 since 2016. Long term, this relationship between capex and depreciation is unlikely to continue as growth flattens. A decrease in user and revenue growth would translate into a decrease in CAPEX because investments have historically been heavily concentrated in servers and office building. Less new users means less need to invest in new network and server assets at an accelerated pace. As such, I expect maintenance capex to be about 1.2 of depreciation.

### **Depreciation as a % of Revenue**

From 2016 to 2021, average depreciation as a % of revenue was 7.8%. Going forward, I estimate depreciation as a % of revenue to remain close to the average past result. Estimate necessary reinvestments in long term assets in 2023 and beyond using depreciation as a % of revenue

Reinvestment in Long Lived Assets						
Year	2023	2024	2025	2026	2027	
Revenue	128,000	142,000	153,000	165,000	178,000	
D&A	9984	11076	11934	12870	13884	
Maintenance Capex to D&A ratio	1.2	1.2	1.2	1.2	1.2	
Estimated Maintenance Capex	11981	13291	14321	15444	16661	
Net Reinvestments in Long Term assets	1997	2215	2387	2574	2777	
Average D&A as a % of revenue	7.8%					

### Reinvestment in Short Lived Assets

Because leasing is an alternative to borrowing and buying the assets, lease payments are treated as financial expenses rather than operating expenses. As such, I will not include lease obligations when calculating the difference in working capital.

Calculate Change in Working Non Cash Working Capital						
Year	2021	2020	2019	2018	2017	2016
Non-Cash Current Assets	18,668	13,716	11,370	9,366	6,852	4,952
Non-Debt Current Liabilities	20,008	13,958	14,253	7,017	3,760	2,875
Non-Cash Working Capital	-1,340	-242	-2,883	2,349	3,092	2,077
% of Revenue	-1.14%	-0.28%	-4.08%	4.21%	7.61%	7.52%
Average % of Revenue	2.31%					

To estimate future non-cash working capital, I will take the historical average. This yields 2.31% of revenues. I expect that in the next 5 years, non-cash working capital will return to its historic level. Causing a decrease in free cash flow of 0.69% of revenues each year until the historical level is reached in year 5.

Expected Non-Cash WC as % of Revenues

Current	1	2	3	4	5
-1.14%	-0.45%	0.24%	0.93%	1.62%	2.31%

## Conclusion

Taking it all together, I estimate that necessary reinvestment in long live assets are 1.2x of D&A. Likewise, I expect reinvestments in short lived assets to decrease free cash flow by 0.69% of revenues until year 5 to arrive at a sustainable of non-cash working capital as a % of revenues of 2.31%.

## Financials of Meta

### Financials of Meta from FY 2016 to FY 2021

(in millions of USD)

Year	2021	2020	2019	2018	2017	2016
Revenue	117,929	85,965	70,697	55,838	40,653	27,638
Cost of Revenue	22,649	16,692	12,770	9,355	5,454	3,789
Research and Development	24,655	18,447	13,600	10,273	7,754	5,919
Marketing and Sales	14,043	11,591	9,876	7,846	4,725	3,772
General and Administrative	9,829	6,564	10,465	3,451	2,517	1,731
Operating Income	46,753	32,671	23,986	24,913	20,203	12,427
Operating Margin	39.6%	38%	34%	44.6%	49.6%	45%
Interest Income	531	509	826	448	391	91
Pre-tax Income	47,284	33,180	24,812	25,361	20,594	12,518
Net Income	39,370	29,146	18,485	22,112	15,934	10,217
Net Income Margin	33%	34%	26%	39%	39%	37%

Compounded Annual Growth from 2016 to 2021:

Revenue: 27%

Operating Income: 25%

### **Commentary:**

Meta's Family of Apps segment remains solid. As mentioned, in 2021 Meta's Family of Apps, which represents around 98% of total revenue, had an operating margin of 49%.

Compared to 2018 and 2016, when the FOA averaged an operating margin of 46%. Moreover, in 2021 profitability was heavily impacted because of The company's investments in Reality Labs. In 2021 Meta lost \$10 billion on this segment. Going forward, I expect Meta's Reality Labs

segment to continue to be unprofitable. To remain conservative I will assume that Reality Labs loses will equal about \$10 billion per year from 2022 to 2027.

## Profitability

**Return on Tangible Capital Employed** = Operating Income / (Shareholders Equity + Total Debt - Non-operating assets (cash and marketable securities) - Goodwill and Intangible Assets)

**Return on Net Tangible Assets** = Operating Income / (Shareholders Equity - Goodwill and Intangible Assets)

The above profitability ratios were chosen because with RONTA, I can bypass three accounting superficialities that can prevent valuing companies accurately: 1) long-term debt financing, 2) equity financing and 3) accounting goodwill and other intangible assets. Meta holds excess amounts of cash and very little debt. I will treat operating lease liabilities as debt because they generate interest and are non-cancellable. With operating lease liabilities as long term debt, in 2021 the company had a Long Term Debt to Tangible Capital ratio of 0.16. As a result, because of the excess cash, and low leverage, we can focus on return on net tangible assets and ignore debt when estimating the profitability of the company.

I will also look at ROTCE to see the company's profitability relative to the tangible capital that is actually employed in their business. This way, I can include net debt in my calculation and better understand the return on the tangible capital invested in the business. Since Meta has significant amounts of excess cash, I think this ratio will better convey the profitability of its business and the return it has on its required capital to run .

Profitability							
Year	2022*	2021	2020	2019	2018	2017	2016
Operating Income	35,130	46,753	32,671	23,986	24,913	20,203	12,427
Pre-tax Income	35,373	47,284	33,180	24,812	25,361	20,594	12,518
Total Debt	24,600	14,454	11,177	10,797	14,651	4,644	1,964
Shareholders Equity	124,094	124,879	128,290	101,054	84,127	74,347	59,194
Goodwill and Intangibles	21,143	19,831	19,673	19,609	19,595	20,105	20,657
Cash and Cash Equivalents	41,776	47,998	61,954	54,855	41,114	41,711	29,449
Net Tangible Capital Employed	85,775	71,504	57,840	37,387	38,069	17,175	11,052
Net Tangible Assets	102,951	105,048	108,617	81,445	64,532	54,242	38,537
Operating Margin	29.77%	39.60%	38%	34%	44.60%	49.60%	45%
Average Operating Margin	40.08%						
ROTCE	41%	65%	56%	64%	65%	118%	112%
RONTA	34%	45%	30%	29%	39%	37%	32%

## Commentary

Meta is very profitable company. In 2021, for example, Meta earned 45% on \$105 billion of tangible net worth, despite their holding large quantities of excess cash and using only token amounts of leverage. On average, from 2016 to 2021, the company's return on net tangible assets has been 35%. Additionally, based on the calculated Return on Tangible Capital Employed, from 2018 to 2021, the company earned an average of 63% on the capital employed in its business. This calculation considers excess cash and total debt. This is very impressive.

For 2022 results I used trailing twelve months operating income and pre-tax income. Although profitability significantly dropped in 2022, I expect this to be temporary, as the company is going through a tough macro-economic environment that translated into less revenue growth. Additionally, the company is improving its cost structure and recently fired 11% of its work force.

## Returns to Shareholders

Meta does not pay any dividends, however, it has return value to shareholders through share-repurchases when the company believes its shares are being mispriced by the market. In 2021, the company repurchased close to 5% of outstanding shares. Representing \$44.5 billion. It is unlikely that this level of share repurchases will continue long term. Short term, if the company continues to believe that its shares are being mispriced, then it is very likely that share repurchases will continue due to its significant cash reserves. In 2022, for example, the company has repurchased \$21 billion dollars worth of shares.

Share Repurchases (millions)							
Year	2022 (YTD)	2021	2020	2019	2018	2017	2016
Share Repurchases	21,093	44,537	6,272	4,202	12,879	1,976	0
Shares Outstanding	2,682	2,859	2,888	2,876	2,921	2,956	2,925

## Management

CEO - Mark Zuckerberg, founder and chairman

CTO and Head of Reality Labs - Andrew 'Boz' Bosworth, since 2022, has been with Meta since 2005

COO - Javier Olivan, who was Chief Growth Officer, has been with Meta since 2005

CFO - David Wehner, since 2014

Head of Product - Chris Cox, has been with Meta since 2005

## Current Narrative

- Meta is likely to remain the dominant player in social media due to its competitive advantages of network effects, scale, and customer captivity.
- Revenue is likely to grow at high single digits in the next 5 years due an increase in users from Asia and Africa and a increases in ad spending in Asia Pacific
- Fines for privacy violations are likely to become more common
  - I estimate \$500 million per year
- Regulation and privacy changes that limit the use of third-party data. Makes it harder for businesses to gain audience insights and measure ad performance.
- Long term, because user growth is likely to flatten and revenue will grow at mid single digits, I expect less need to build new data centers, and as such I estimate that cost of revenue as a percentage of revenue to be closer to average past results at around 16% to 18%.

- As user and revenue growth decreases, the company's reinvestment needs will decrease to a more sustainable level of around 1.2x of depreciation where depreciation is 9% of revenue
- Significant attention and investments presents a risk to the company management attention is shifting and the company's profitability is being heavily impacted

### **Limits in this valuation**

- I do not know if short form video will monetize as well as Stories or Photo
- I do not know the full impact that future privacy regulations will have on Meta's cost structure
- I do not know the full impact that Apple's privacy changes and future regulation will have on Meta's revenue
- I do not know if mobile will be the dominant platform for accessing the internet 10 years from now

### **Information that Could Dramatically Change my Valuation**

- Data targetting becomes so limited that return on ad spent significantly drops and revenue decreases
- User base and engagement starts to decrease at an accelerated pace
- Digital advertising does not adapt correctly to be less reliant on third party data
  - This means that return on ad spent decreases as third party data becomes more limited
- Actions by governments that restrict the use of Meta's products in their countries
- Short form video becomes attracts most time spent but fails to monetize appropriately
- Competition from Tik Tok significantly reduces user engagement
- Other social media platforms rise and become serious competitors. This would mean that my understanding of Meta's moat is wrong and is less than I thought so
- Interest rates significantly rise or fall
- Meta tightens spending on Reality Labs and loses decrease

## Calculate Meta's Enterprise Value

### Calculate Net Debt

Net debt = Total Debt - Cash and Cash Equivalents  
\$-17,167 million USD = \$14,687 + \$9,922 - \$41,776

*Note: Counted Operating Lease Liabilities as Debt*

### Current Equity Market Price

348,000 million USD

### Enterprise Value

EV = Current Equity Market Price + Net Debt  
**EV = 330,833 million USD**

## Discounted Cashflow to the Firm

Cash Flow to the firm should be both after taxes and after all reinvestment needs have been met. Because cash flow to the firm is for both equity and debt investors, it should be before debt cash flows—interest expenses, debt repayments, and new debt issues. Thus, I will estimate the cash flows to the firm using operating income. I will then adjust this number with the current tax rate. Finally, I will subtract or add from this amount reinvestment needs in long-term and short-term assets.

For the purposes of this valuation and to remain conservative, I will separate the Family of Apps and Reality Labs operating segments. To remain conservative, I will not consider improvements in the Reality Labs segment and will assume that it will continue to burn through billions of dollars. To estimate future losses, I will use 2021's operating results, as it is very difficult to predict future results. Consequently, my revenue estimates will only come from the Family of Apps segment, which currently represents 98% of revenue. This way, I will calculate operating income, EBIT, from the Family of Apps segment and deduct operating losses from the RL segment to arrive at the consolidated result. Finally, I will estimate reinvestments based on my expected FOA revenue because most capital expenditures are related to this operating segment.

### Step 1: Estimate Future Revenues

Year	Digital Ad Spending Worldwide (billions)	Meta's Marketshare (billions)	Meta's share (billions)	Growth

Base Year 2022	524	22%	114	
Using company's estimates for 2022 revenue				
2023	585	22%	128	12%
2024	645	22%	142	11%
2025	696	22%	153	8%
2026	750	22%	165	8%
2027	811	22%	178	8%

## Estimate Operating Expenses and Operating Income Based on Cost Structure

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022*	2023*	2024*	2025*	2026*	2027* After year 5			
Revenue	1,974	3,711	5,089	7,872	12,466	17,928	27,658	40,663	55,838	70,697	85,965	117,929	114,500	128,000	142,000	153,000	165,000	178,000	192,000		
Cost of Revenue	493	860	1,364	1,875	2,153	2,867	3,789	5,454	9,355	12,770	16,692	22,849	27,179								
As % of revenue	25.0%	23.2%	26.8%	23.8%	17.3%	16.0%	13.7%	13.4%	16.8%	18.1%	19.4%	19.2%	23.7%								
FOA COGS	493	860	1,364	1,875	2,153	2,867	3,789	5,454	9,355	10913.9	13273.0	18208.2	24460.9	26000	24040	24480	26400	28480	34560		
FOA COGS as % of related revenue	25.0%	23.2%	26.8%	23.8%	17.3%	16.0%	13.7%	13.4%	16.8%	15.44%	15.44%	15.44%	21.4%	16.0%	16.0%	16.0%	16.0%	16.0%			
Gross Profit										35,199	46,483	57,927	69,273	95,280	87,321	102,000	117,960	128,520	138,600		
Gross Profit Margin										86.60%	83.20%	82.9%	80.58%	80.79%	76.26%	79.69%	83.07%	84.00%	84.00%		
R&D	144	388	1,399	1,415	2,666	4,816	5,919	7,754	10,273	13,600	18,447	24,655									
As % of revenue	7.3%	10.5%	27.5%	18.0%	21.4%	26.9%	21.4%	19.1%	18.4%	19.2%	21.5%	20.9%									
FOA R&D	144	388	1,399	1,415	2,666	4,816	5,919	7,754	10,273	12,635	16,117	20,818	28825	25968	28826	31059	33495	36134	38976		
FOA R&D as % of related revenue	7.3%	10.5%	27.5%	18.0%	21.4%	26.9%	21.4%	19.1%	18.4%	18.2%	20.4%	20.8%	25.0%	20.3%	20.3%	20.3%	20.3%	20.3%			
Sales and Marketing	167	303	906	997	1,080	2,725	3,772	4,725	7,946	9,876	11,591	14,040	15,400								
As % of revenue	8.5%	10.6%	17.6%	12.7%	13.5%	15.2%	13.6%	11.6%	14.1%	14.0%	13.5%	11.9%	13%								
FOA S&M	167	393	896	997	1,680	2,725	3,772	4,725	7,946	9,507	11,175	12,972	13740	17152	19028	20502	22110	23852	25728		
FOA S&M as % of related revenue	8.5%	10.6%	17.6%	12.7%	13.5%	15.2%	13.6%	11.6%	14.1%	13.4%	13.0%	11.0%	12.0%	13.4%	13.4%	13.4%	13.4%	13.4%			
General and Administrative	138	314	892	781	973	1,295	1,731	2,517	3,451	10,465	16,564	9,829	13,000								
As % of revenue	7.0%	8.5%	17.5%	9.9%	7.8%	7.2%	6.3%	6.2%	6.20%	14,80%	7,60%	8,30%	11.4%								
FOA G&A	138	314	892	781	973	1,295	1,731	2,517	3,451	9869.0	5938.3	8096.2	11700	8960	9940	10710	11580	12460	13440		
FOA G&A as % of related revenue	7.0%	8.5%	17.5%	9.9%	7.8%	7.2%	6.3%	6.2%	6.20%	14.1%	7.0%	10.2%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%			
FOA EBIT reported										28,489	39,294	56,948									
FOA EBIT calculated										20,203	24,913	27771.5	38322.2	55860.4	35,974	49,920	60,166	66,249	71,445	77074	79,296
Margin calculated										49.7%	44.6%	39.3%	44.6%	48%	28%	35%	40%	42%	43%	46%	
RL EBIT reported												-6623	-10193	-10000	-10000	-10000	-10000	-10000	-10000		
Margin												-44%	-51%								
Consolidated Operating Results																					
Operating Expenses										20,450	30,925	46,711	53,294	71,176							
Operating Income										20,203	24,913	23,986	32,671	46,753	25,974	39,920	50,166	56,249	61,445	67,074	69,296
Operating Margin										49.70%	44.6%	34.00%	38%	39.60%	22.7%	31.2%	35.3%	36.8%	37.2%	36.1%	

## Estimate Reinvestment Rate

I expect the necessary capex to depreciation ratio to be 1.2x. To estimate reinvestment needs in my discounted cashflow valuation I will use D&A as a % of revenue of 9%. I will use FOA's revenues as the denominator because it currently represents 98% of revenues and the majority of capital expenditures. This way I can estimate D&A going forward, and multiply this

number by the expected Capex to D&A ratio to estimate the necessary capital expenditures to bring Meta's operations to what they were at the beginning of the year. Finally, I will calculate reinvestment in long lived assets by finding the difference between Maintenance capex and D&A.

### Expected Reinvestment in Long Lived Assets

Reinvestment in Long Lived Assets					
Year	2023	2024	2025	2026	2027
Revenue	128,000	142,000	153,000	165,000	178,000
D&A	9984	11076	11934	12870	13884
Maintenance Capex to D&A ratio	1.2	1.2	1.2	1.2	1.2
Estimated Maintenance Capex	11981	13291	14321	15444	16661
Net Reinvestments in Long Term assets	1997	2215	2387	2574	2777
Average D&A as a % of revenue	7.8%				

### Expected Reinvestment in Short Lived Assets

To estimate future non-cash working capital, I will take the historical average. This yields 2.31% of revenues. I expect that in the next 5 years, non-cash working capital will return to its historic level. Causing a decrease in free cash flow of 0.69% of revenues each year until the historical level is reached in year 5. I will use FOA's revenues as the denominator because it currently represents 98% of revenues.

#### Expected Non-Cash WC as % of Revenues

Current	1	2	3	4	5
-1.14%	-0.45%	0.24%	0.93%	1.62%	2.31%

Reinvestment in Short Lived Assets					
Year	2022	2023	2024	2025	2026
Revenue	\$128,684.00	\$141,856	\$150,247	\$157,235	\$166,046
Change in Non Cash WC as a % of Revenues	0.69%	0.69%	0.69%	0.69%	0.69%
Reinvestment in Short Lived Assets	\$887.92	\$978.81	\$1,036.70	\$1,084.92	\$1,145.72

## Taking it all in

Base Case							
Assumptions							
	2023	2024	2025	2026	2027	After year 5	
Revenue	\$128,000.00	11%	8%	8%	8%	3%	Link to Story Revenue growth slows down as user growth flattens, and the trend towards online advertising slows down.
Operating Margin	31%	35%	37%	37%	38%	36%	Operating margin decreases from 2021 levels due to increase expenses in data centers as a proportion to revenue growth. More expenses related to the adoption of data privacy regulations, like privacy enhancing technology.
Tax Rate	21%	21%	21%	21%	21%	21%	US Marginal tax rate over time
Net Reinvestment Rate in long term assets	1,997.00	2215	2387	2574	2777	2,875.85	Maintenance capex is 1.2x of D&A where historical average D&A as a % of revenue is 7.8%.
Reinvestment in Short Lived Assets	0.69%	0.69%	0.69%	0.69%	0	0	Until 2.31% non cash working capital as a % of revenue is reached
Cost of Capital	1.11	1.23	1.37	1.52	1.69	1.69	Current opportunity cost
The Cashflows							
	Revenues	Operating Margin	EBIT	EBIT(1-t)	Necessary Reinvestments in long lived assets	Change in Non-Cash Working Capital	FCFF
1	\$128,000.00	31%	\$39,936.00	\$31,549.44	1,997.00	\$883.20	\$28,669.24
2	\$142,080.00	35%	\$49,728.00	\$39,285.12	2215	\$980.35	\$36,089.77
3	\$153,446.40	37%	\$56,775.17	\$44,852.38	2387	\$1,058.78	\$41,406.60
4	\$165,722.11	37%	\$61,317.18	\$48,440.57	2574	\$1,143.48	\$44,723.09
5	\$178,979.88	38%	\$68,012.35	\$53,729.76	2777	0	\$50,952.76
Terminal Year	\$184,349.28	36%	\$66,365.74	\$52,428.93	2,875.85	0	\$49,553.09
The Value							
Terminal Value	\$619,413.57						
PV(Terminal Value)	\$367,591.81						
PV(Cashflow over)	\$145,094.03						
Enterprise Value	\$512,685.84						
Debt & Minority Interests	\$24,609						
Cash & Other Net Assets	\$41,776						
Value of Equity	\$529,852.84						
Number of Shares	2,682						
Value per Share	\$197.56						
Current Value per Share	136						
Margin of Safety	31.16%						

Best Case							
Assumptions							
	2023	2024	2025	2026	2027	After year 5	Link to Story
Revenue	\$128,000.00	11%	8%	8%	8%	3%	Revenue growth slows down as user growth flattens, and the trend towards online advertising slows down.
Operating Margin	31%	35%	37%	37%	43%	41%	Although family of app's operating margin decreases from 2021 levels due to increase expenses in data centers as a proportion to revenue growth, and more expenses related to the adoption of data privacy regulations, like privacy enhancing technology. Reality of Labs breaks even in year 5.
Tax Rate	21%	21%	21%	21%	21%	21%	US Marginal tax rate over time
Net Reinvestment Rate in long term assets	1,997.00	2215	2387	2574	2777	2,875.85	Maintainance capex is 1.2x of D&A where historical average D&A as a % of revenue is 7.8%.
Reinvestment in Short Lived Assets	0.69%	0.69%	0.69%	0.69%	0	0	Until 2.31% non cash working capital as a % of revenue is reached
Cost of Capital	1.11	1.23	1.37	1.52	1.69	1.69	Current opportunity cost
The Cashflows							
	Revenues	Operating Margin	EBIT	EBIT(1-t)	Necessary Reinvestments in long lived assets	Change in Non-Cash Working Capital	FCFF
1	\$128,000.00	31%	\$39,936.00	\$31,549.44	1,997.00	\$883.20	\$28,669.24
2	\$142,080.00	35%	\$49,728.00	\$39,285.12	2215	\$980.35	\$36,089.77
3	\$153,446.40	37%	\$56,775.17	\$44,852.38	2387	\$1,058.78	\$41,406.60
4	\$165,722.11	37%	\$61,317.18	\$48,440.57	2574	\$1,143.48	\$44,723.09
5	\$178,979.88	43%	\$76,961.35	\$60,799.47	2777	0	\$58,022.47
Terminal Year	\$184,349.28	41%	\$75,583.20	\$59,710.73	2,875.85	0	\$56,834.88
The Value							
Terminal Value	\$710,436.03						
PV(Terminal Val)	\$421,609.20						
PV(Cashflow ov	\$149,289.55						
Enterprise Value	\$570,898.76						
Debt & Minority I	\$24,609						
Cash & Other Ne	\$41,776						
Value of Equity	\$588,065.76						
Number of Share	2,682						
Value per Share	\$219.26						
Current Value pe	136						
Margin of Safety	37.97%						

## Limitations and Risks

1. My discount rate could be wrong
2. I do not know the full impact that future privacy regulations will have on Meta's cost structure
3. I do not know the full impact that Apple's privacy changes and future regulation will have on Meta's revenue
4. I really do not know if Meta will be the dominant social media platform in 10 years

## Relative Multiples Valuation

Meta is selling at lower multiples than competitors, with a trailing P/E of 11 compared to Google's 18.2. I think this is due to the market's fear regarding Meta's investments in Reality Labs. It is very difficult to estimate future ROI from this business segment and cashflows. Moreover, Apple's privacy feature and new privacy regulations reduce return on ad spent for advertisers. This means less effective targeted ads and as a result less revenue from advertisers. Furthermore, rising competition from Tik Tok and low user growth also contribute to the differences in valuation multiples.

Company	Trailing P/E	Current P/B	Trailing P/S
Google	17.5	4.5	4.15
Meta	12.41	2.6	3
Snapchat	N/A	5.13	3.24

## Historical Multiples

P/E



## P/S



## P/B



## Analysis of Results and Margin of Safety

**Enterprise Terms**  
*in millions USD*

EPV to the firm	\$273,872
DCF to the Firm (Base Case)	\$512,685
DCF to the Firm (Best Case)	\$570,898

Enterprise Market Value: \$330,833 million USD

### Analysis of Results

Based my DCFF valuation, Meta is undervalued by 31% in equity terms when comparing my calculated value per share of \$197 and the current market price of \$136. Based on this margin of safety, I think Meta is selling at an attractive price. This conclusion is further validated by my relative multiples valuation. Meta is selling at a very low multiples compared to its historical average and is currently priced lower than competitors. Taking everything above into account, my recommendation is to **invest at the current price**. Because I do not know with certainty how social media will look 10 years from now and if Meta will continue to be the dominant player, I would only invest in the company with the given discount.