

The Impact of the Facebook News Feed on



Information Distribution

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Abstract

The dominant social media platform of Facebook is involved in the distribution of immense amounts of information daily through its almost 2 billion users worldwide. The platform caters to a wide variety of functions that encompass both regular people and large organizations. The popularity of the platform has made it relevant for news organizations as a means of distributing and drawing attention to their productions. The exposure to content by a Facebook user mainly occurs in part of the platform called the News Feed. The users' experience is affected by the visual setup and functionality of the platform, as well as the algorithmically sorting of content according to what the user has previously shown an interest in by interacting with it on the platform. This report analyzes the setup of Facebook's News feed in terms of its visual and functional setup and the sorting of information. This is done to assess the consequences of these aspects for a citizen's ability to stay informed about relevant public matters when using the platform as news source. Ultimately it will seek to answer the question of whether its dissemination of information is a threat to a well functioning democracy.

It is found that the news feed is an environment that is tightly loaded with large amounts of information and is defined by ephemerality and competition. Easily processable information is promoted by these features as it is more accessible to the user in this environment. Due to the conforming effect of visibly successful content, it is produced more often when it is experienced to be successful. The competitive nature of the news feed is also enhanced by the sorting of the EdgeRank algorithm which favors engaging content. It is therefore necessary for users to produce engaging content to keep showing up in other users news feed. This is particularly necessary to consider for organizations such as news outlets with an agenda of reaching people while it is less important for private users who also can gain engagement based on different, easier social parameters. Engaging posts are necessary in competing for one of the first spots in the News Feed, which are coveted since likelihood of a user engaging.

These features make the News Feed a problematic environment for the dissemination of news relevant to a democratic citizen. The competitive features of the

News Feed lead to baiting strategies to gain site views and engagement, which can erode trust in an outlets ability to produce serious content. Also, the fact that EdgeRank favors content similar to that which has previously been engaged with, limits the exposure to ideologically opposing news items, which can lead to group polarization and a ultimately a more divided society. The competitive environment of the visual and functional setup of the News Feed is not conducive to hard news, which is not necessarily processable or attention grabbing within a few seconds, particularly in competition with content of less demanding, enjoyment oriented content. The conclusion is that the setup of the News Feed contributes in more negative ways than positive. The aspects are not strong enough to be defined as a direct threat to democracy. The features can also be used to further useful information about public matters as well, though that is not deemed the most easily achievable or expected outcome. But if the News Feed is used as the dominant, primary source for news items to stay relevantly informed on important public matters such as voting it is problematic. This situation is not the reality in an American context yet, TV is still the dominant factor for news. But the younger generations increasingly use Facebook as a news source making it a probable future outcome that it is the primary news source. Such a situation should be monitored going forward, and measures to combat this should already be considered. Such suggestions are also a part of this report.

(Abstract: 3.949 characters)

Contents

<u>Introduction</u>	<u>4</u>
<u>The value of an informed citizenry</u>	<u>6</u>
<u>Description of Facebook</u>	<u>8</u>
<u>Accessing Facebook</u>	<u>11</u>
<u>Numbers for News Consumption</u>	<u>12</u>
<u>Visual and Functional Analysis of the News Feed</u>	<u>14</u>
<u>EdgeRank: The Sorting of the News Feed</u>	<u>21</u>
<u>The Business Model of Facebook</u>	<u>24</u>
<u>News Feed Effect: Direct Communication of Politicians</u>	<u>33</u>
<u>News Feed Effect: Fake News</u>	<u>36</u>
<u>News Feed Effect: Filter Bubbles</u>	<u>43</u>
<u>Group polarization</u>	<u>43</u>
<u>Studies from an external point of view</u>	<u>45</u>
<u>The study with inside access</u>	<u>49</u>
<u>Discussion of consequences of the News Feed setup</u>	<u>55</u>
<u>The environment of the News Feed</u>	<u>55</u>
<u>News organizations and News Consumption in the News Feed</u>	<u>58</u>
<u>Politicians in the News Feed</u>	<u>62</u>
<u>Informing the citizen in the News Feed</u>	<u>64</u>
<u>Possible solutions to democratic issues</u>	<u>67</u>
<u>By the Company</u>	<u>67</u>
<u>By Citizens</u>	<u>70</u>
<u>By news organizations</u>	<u>71</u>
<u>By government</u>	<u>72</u>
<u>Conclusion</u>	<u>74</u>
<u>Source list</u>	<u>76</u>

Introduction

The concept of an informed citizenship has always been crucial to a functioning democracy. Citizens need to be usefully informed about the relevant factors of ongoing public life to take meaningful democratic action particularly when it has to do with voting. How such information can be accessed matters greatly. Due to technological advances distribution of information can now occur in an instant with a world wide reach with very few costs. This results in a vast amount of information being spread, a lot more than the human mind can manually manage and order, so to help us find and encounter what is important algorithms are employed to help. Therefore, it doesn't only matter that information is received and in which form it is received, it also matters which information is received. Algorithms are employed daily for a wide variety of tasks in many sectors basically in every situation a computer is involved. This is often in a highly and digitized world. In this the algorithmic filtering of information is the primary source of interest. Information is essential to improvement, and it is what science and democracy is built on. Therefore it matters greatly how it is sorted and distributed.

There is likely no single entity, besides Google and the PageRank algorithm which governs their search, which matters more in information distribution today than Facebook. The social medium is closing in on 2 billion users worldwide (Statista 2017a). Used for a wide variety of interactive tasks, news consumption it has become increasingly popular on the platform. A majority of Americans now get news from social media and a debate regarding whether this is good flared up in 2016. It particularly revolved around the seemingly easy distribution of fake news during the American Presidential election campaign, and whether the setup of Facebook led filter bubbles where people were only seeing attitudes that they tended to agree with already. The consequences of these things were debated widely, with some arguing that fake news was monumental in the election outcome, while others thought the effects were widely overstated both regarding the spread and in regards to news items wide relatively wild claims to have had a strong impact.

The importance of such a debate is because most agree that an informed citizenry is a staple of a democratic society (Kuklinski et al, 2000) The World Economic Forum identifies misinformation online as one of the key issues moving forward

(Quattrociocchi 2016). However, the debate regarding Facebook too often leaves out a good understanding of its key functions opening the door for moral panics. The focus is often on how people and news organizations act. There is a greater focus on the message, and not enough on how the medium shapes the communication. As with all previous media how it extends the human senses is important as it affects the message that is transmitted (McLuhan, 1964). However, as a further addition the algorithmic sorting is highly relevant because the criteria of it shape what communication is seen by whom. Algorithms are made with certain goals in mind, but because they are made by people they are also liable to contain biases or overlooked consequences and should therefore be the subject to scrutiny (Bozdag, 2013). The research question this report will seek to answer is how the setup of the Facebook platform affects citizens' ability to be well informed, and whether it is a threat to democracy. The focus will be on an American context which is Facebook's land of origin and base of operations. English was the first language that Facebook was made available in, and the American society has been very salient in the debate about the effects of Facebook.

The first step of the report will be to describe the value of an informed citizenship in a democracy in an effort to frame the research question's importance. The second step is to describe Facebook, what it is, how it works and significant points about how it is used. This will include a micro-oriented analysis in two parts of the Facebook News Feed which is the key part of Facebook's information distribution, and perhaps to overall key part of it. The first part will be a visual analysis of how the feed is experienced, the second part will deal with how the information seen there is sorted through the algorithm called EdgeRank. Then continuing the description of Facebook will be a macro-oriented description of the business model of Facebook. After that, moving on the third major step, will be an analysis of how Facebook's setup has impacted information dissemination in looking at the two major points of criticism the platform has endured in the form of fake news and filter bubbles. The report will then conclude with the fourth step in the form a discussion of the consequences the setup of Facebook has on its effectiveness as a news source, whether it is helpful in this regard, and possible solutions to improve this area.

The value of an informed citizenry

When making a decision, it is an advantage to know as much relevant info as possible on the subject. When making a decision that impacts a lot of people, such as voting for a country's leaders, it is even more important. Therefore when the public has the power and responsibility to choose its leaders, as the case in a modern democracy, it is important they have as much relevant information as possible to make an informed decision. If people are not relevantly informed when voting for their leaders, it is questionable whether democracy is really working. Western democracies, formed from the late 18th century and onwards and developed to this day, are built on such principles. While a scenario where all citizens of a country are optimally informed is more of an ideal than a real possibility, it is generally established that the normative ideal is a citizenry who are factually informed on the matters relevant to the political discussion (Kuklinski et al, 2000).

Governmental agencies and its elected officials often have the best access to the information relevant to the citizens, but they are in a conflict of interest when the facts of the matter reflect negatively on them (Sunstein & Vermeule, 2009). Therefore the responsibility falls to the news media. How they gather and distribute their findings is therefore very important. In this regard, technological advances and new ways of using them now play a large role. Over the last decade Facebook has become one of the biggest changes, if not the biggest, change in how news is distributed and consumed. What started out as a limited extension of social relationships, now encompasses every part of life, including news, and the sorting of information available instantly in a person's pocket therefore matters greatly. Distribution probably matters more now than creation of content. Pariser weighs in on democracy and filter bubbles:

"Ultimately, democracy works only if we citizens are capable of thinking beyond our narrow self-interest. But to do so, we need a shared view of the world we cohabit. We need to come into contact with other peoples' lives and needs and desires. The filter bubble pushes us in the opposite direction—it creates the impression that our narrow self-interest is all that exists. And while this is great for getting people to shop online, it's not great for getting people to make better decisions together. (...) Personalization has given

us... a public sphere sorted and manipulated by algorithms, fragmented by design, and hostile to dialogue” (as cited in Birkbak & Carlsen, 2016)

The reason filter bubbles where people are shown more information they agree with than they would otherwise see, is highly problematic, is because there is already a quite strong similar effect in the human mind. That people have confirmation bias is a well established fact in the psychological literature. People often think they have a better understanding of a concept than they really do, and tend to view information they already favor as more credible. Strong feelings on an issue generally doesn't come from a strong understanding, and emotional reactions to issues are the more pleasurable option compared to those based on logic. There is some hope in research which shows that people modify the intensity of their view when they become aware of their lacking knowledge on a subject through an inability to explain it (Kolbert, 2017). Nyhan et al, (2017) highlights similar findings which show that people who are misinformed are guided by directional reasoning. In short, this means finding facts that fit an opinion rather than an opinion that fit the facts. They also found that misconceptions in American society were widespread, and elites and media played a key role in promoting false and unsupported beliefs. One area where this can be seen is on vaccines and the choice for parents to forego them for their children. In this area it has also been shown that people look for evidence to support their preconceived notions, of which there is plenty available online, rather than looking for the best, most credible evidence and forming opinions based on that (Fryer, 2016).

Description of Facebook

Facebook is a social network that is based on relationships from the offline life (Bechmann & Lomborg, 2015, p. 70). Social media draws upon the full range of technological advances since the development of the personal computer and includes a variety of other media. Logan (2016) describes social media in this manner:

“Content and extension: The Content of the Social Media are Web sites, whose content is text, hypertext, and images still and video that facilitate social interactions and making new contacts. Social media extends the social contacts of its users” (p. 343)

It is possible to access Facebook both from a computer in a browser or on a smartphone through an app. The latter is an increasingly popular access point, and has become the most popular option as smartphones have become commonplace (Statista, 2016, 2017b). The main premise of Facebook is to connect with people you already know and extend that social connection. To use the platform, a user profile must be made and a network must be built there by adding friends through requesting them or accepting their "friend request". Therefore, though it is possible, it is somewhat discouraged to make an anonymous profile with a pseudonym, as it would defeat a large part of the purpose, and would make it less likely for people accept friend requests. Aside from building a network of friends, it is also possible to follow public profiles of celebrities, brands, organizations, and more, which you want to receive information from.

When a network of at least two connected users is built, users can share information with it. This information can be text, photos, videos, or links to pages outside facebook. This can be done either in private messages to one or more profiles, or as a "post" on one's timeline where it usually will be visible to the whole network of a profile. The friends of the user then can interact with the content by commenting, sharing the post with their network, or choosing one of several standardized responses where the positive feedback called the "like" is the most common. Users will be informed when someone interacts with their content or sends them a message. This is done both through visual clues within the app, red numbers to show unread content, but more importantly, if they use the smartphone app, through instant push notifications in the form of sound, vibration, light. And even when these notifications are turned off, it only requires grabbing the phone out of the pocket to see if there are any notifications. This means that Facebook is just about always available to a user, and often will prompt the user to open the app.

The reasons for using Facebook are many, as social life encompasses a wide variety of activities. At this moment, it is perhaps easier to say what Facebook is not used for rather than what it is used for. With the spread of smartphones with perpetual internet access, Facebook is readily available at any time, and just like social activities interaction, communication, and information consumption can encompass a wealth of

subjects, Facebook as an extension of social life does too. Aladwani (2014) identifies these reasons for Facebook use: connecting, sharing, relaxing, organizing, branding, monitoring, expressing, and learning. The learning part is particularly interesting in the context of this paper, as learning includes gaining new information such as news. Apart from these reasons, wanting to be part of social groups and the activities that they engage in on the platform has been identified as a significant reason for joining when a majority of friends are using it (Bechmann, 2014). Facebook use, particularly the feature of likes, has been connected to social endorsement, and activation of neural centers associated with reward, social cognition, imitation, and attention (Sherman et al, 2016). It can therefore be said that Facebook has created an instant gratification system that relies on social clues, and can be transmitted instantly. This explains a large part of its popularity as such reward centers in the brain also have been shown to release pleasure hormones from such cues.

The main feature of Facebook is the News Feed. It is the front page of the platform where users see content from the profiles they follow. They can scroll down to see more content of different users. Originally the News Feed was ordered chronologically, so the newest posts would appear first. While this "Most Recent" option is still available in the browser version on computers, the standard version was changed early in the platform's lifetime to an algorithmically sorted News Feed, and this is the only available version on the smartphone. This change was done to solve the problem of users missing posts due to either not being on Facebook around the time of the post, or due to having a large network. The content of the News Feed is now sorted by the EdgeRank algorithm which, with a brief description, calculates whether a post will be shown to user based on how much the user has interacted with the poster's content previously. This is the basis of the controversy regarding Facebook, with the main accusation being it enhances confirmation bias by showing people things they are likely to agree with, and thereby creating filter-bubbles or echo chambers. EdgeRank will be presented and analyzed in further detail later on, as well as an analysis on the News Feed functions, particularly from a visual perspective.

Accessing Facebook

Following the line of thinking from McLuhan (1964) and Logan (2016) a medium is defined by being an extension of the human senses. An analysis of a medium, and therefore also the Facebook platform, should begin with how it is accessed, the first access point, from a sensory perspective. Facebook is either accessed by a computer or a smartphone. The physical realities of a computer are a screen which shows you images through which you navigate with a keyboard or a mouse (pad). Speakers are also generally included to provide sound, though they can be turned off. So the senses that are engaged are touch, sight, and possibly hearing. Most importantly, are sight and the cognitive functions that are engaged through view text, photo and video. It therefore is an extension of the ear, the voice (if there is a microphone), the spoken word, the written word, and the mind (Logan, 2016, p. 282).

The other option of accessing Facebook is the smartphone. The size of the phone, the accessibility of it since it's on the users persons at most times, and the fact that it is controlled through a touch screen, make the use of it more intuitive and less conscious, compared to the computer which is larger and requires external extensions like the keyboard and the mouse to acces it. The high degree of accessibility shortens the period of conscious noticed use, which occurs in the early stages of using any medium. As use become common, it also becomes unnoticed. That element of media use becomes problematic with the speed of electric media that quickly becomes unnoticed and used uncritically (McLuhan 1964, pp. 4-5, 26, 64-65,). The smartphone is an example, perhaps the prime example, of the hybridization of media in the electric age (p. 49); it contains a multitude of media and extends multiple senses:

"The content of the smartphone is the spoken and written word, hence the smartphone extends the ear, the voice, the spoke word, the written word, and the mind, but it also extends the telephone system through radio transmission." (Logan, p. 291)

I would add that it contains the camera, the photograph and video as well. It then also extends the eye, and therefore extends every sense, but touch. These features as well as almost perpetual internet connection make for a ubiquitous medium where users

“increasingly live in media rather than with media, thereby making the media themselves invisible” (Lomborg & Bechmann, 2015, p. 37). Pairing smartphone technology with a wide array of functions and needs, Facebook has succeeded to build upon its platform gaining an even larger number of users, and a hefty part of people's attention. Therefore it has become a channel of distribution that can not be ignored for news organizations. There are simply too many users who spend a lot of time daily on the platform. This is particularly the case for the already pressured newspapers, who have struggled in the digital age, and only taken reactive measures as opposed to proactive ones to adjust to the new media reality (Logan, 2016, pp. 186-195).

Numbers for news consumption on Facebook

News organizations reacted to the popularity of Facebook and created a presence on social media. This has led to Facebook becoming a prominent distributor of news, though they do not produce any content themselves. Pew Research Center, an American non-partisan, non-profit fact-tank organization have done several representative surveys that illuminate this area. 62 % of Americans reported to get news on social media in 2016 and the number seems to have increased, as 49 %, answering a slightly different question, reported seeing news on social media in 2012. Of those getting news on social media, 66 % get it from Facebook, a number that is up from 47 % in 2013 (Gottfried & Shearer 2016, p. 3). 38 % reported to get news often online (Mitchell et al, 2016, p. 4), and of the digital users Facebook was the second most used second only to news organizations own web pages or apps (Mitchell et al 2017, p. 4).

While Facebook's importance has grown, TV is still the dominant platform for news in America, 57 % often use it. However, it holds its majority due to the older generations. 85 % of those aged 65+ often use TV, 72 % for ages 50-64, 45 % for 30-49 year olds, and only 27 % for those aged 18-29. The inverse is true regarding online use, where the same groups report, 20 %, 29 %, 49 %, and 50 % respectively (Mitchell et al, 2016, p. 4). The same picture is evident in the numbers for news consumers on Facebook which are 8 %, 22 %, 38 % and 31 % for the same age groups (Gottfried et al, 2016, p. 8). However, 61 % of people who get news on social media only get it from one site (p. 6). The Reuters Institute at Oxford University reports that 45 % of Americans use Facebook

weekly for news and 51 % of people under the age of 35 do. These numbers have risen steadily over the last three years. To offer some context for the digital numbers in general, they report the country has an internet penetration of 87 % (Newman et al, 2016). These numbers show that while news consumption on Facebook is not yet the dominant force in its own right at the moment, it is a significant part of the puzzle, particularly for the younger generations. The numbers have risen in recent years, which points to that digital news consumption and Facebook as a news source will become increasingly important in the future. The mechanics it functions under is therefore an important point for research.

Aside from the fact that a lot of people consume news on Facebook, it is also important how people come upon the news. An important question is whether they actively look after it, or passively happen upon it. Of news users on Facebook 62 % mostly get news when they are doing other things vs. 38 % who get it because they are looking for it (Gottfried et al 2016, p. 7) That a majority of Facebook news users mostly happen upon news makes it very relevant how these news items come their way, as they use the platform.

Another important aspect is how news consumers react to digital news in the current media climate where there is so much content available. Considerations of human memory capacity are relevant in this context, because more information is not necessarily better if people are unable to recount and therefore make use of the information. It was found that online news consumers could recall the name of the news outlet 56 % of the time when they followed a link. Younger and older news consumers were equally likely to follow links, but younger consumers aged 19-29, remembered the source 47 % of the time, compared to older users. Those aged 30-49 remembered the source of the link 57 % of the time, and ages 50 or older remember it 61 % of the time. Though users were most likely to access news through a news organization's website (36 %) or social media (35 %) and less likely to go through email, text message or search engine, the way most likely to elicit follow-up action when receiving digital news was when receiving email or text from a family member or friend at 73 % of the occurrences. Going through a search engine was the second most likely option to elicit follow up action at 62 % followed by Social Media at 53 %, 51 % for alert service from a news organization, and 49 % when going

through a news organization's website or app. The news topics most likely to elicit follow up action were: Community (68 %), Health (66 %), Science and Tech (62 %), Crime (59 %), Government and Politics (56 %), Business and Finance (53 %), Sports (51 %), Entertainment (46 %) (Mitchell et al, 2017).

And though news users who seek out news actively can be expected to be somewhat more reflective and critical limiting the influence of the platform's curating, their search will also be influenced by how a platform is set up, and which actions are encouraged. Two things matter in this case, one thing is the functional and visual setup and its effect on the experience of the user, the second is which content is chosen for the user to see and why.

Visual and functional analysis of the News Feed

To analyze Facebook's News Feed, I will rely on Marshall McLuhan's conception of media as extensions of the human senses and how the medium from that perspective interacts and affects human conceptualization and experience of the world. This will come from his influential work *Understanding Media* from 1964 as well as a modern version building on the same ideas *Understanding Media: Extending Marshall McLuhan* by Robert Logan (2016). These considerations will be used for a perceptual analysis of Facebook in which visual examples will be a key aspect.

The name of the first chapter of *Understanding Media* is the now famous sentence "The Medium Is the Message". This entails that the content of a medium should not be studied without considering the medium through which it is relayed, because the medium shapes the content through how it functions. It is more of a symbiotic relationship than it is a case of either or. Media are extensions of already known processes the human senses and sensibilities, and they transform these by introducing new scales of experience.

"... the psychic and social consequences of the designs or patterns as they amplify or accelerate existing processes. For the "message" of any medium or technology is the

change of scale or pace or pattern that it introduces into human affairs.” (McLuhan, 1964, p. 8)

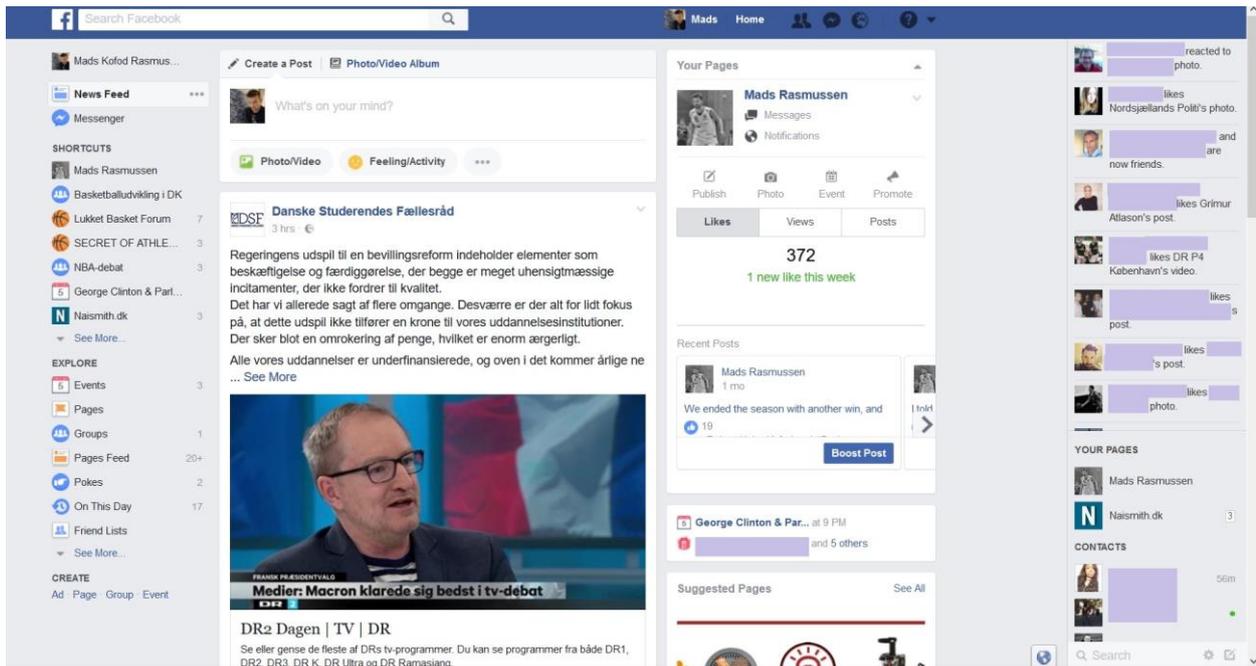
Such changes become increasingly overlooked as use of a medium becomes more common and the extensions become habit, particularly in today’s media reality, where media are built within media and therefore contain aspects that are even easier to overlook and as such are particularly necessary to consider. Concluding the chapter on social media Logan (2016) reflects that it is a new discernable language made by drawing on the multitude of previous media:

“I am beginning to believe that social media such as Facebook are the seventh language, joining speech, writing, math, science, computing, and the Internet in an evolutionary chain of languages (...) I justify this surmise on the basis that social media and all the documents it encompasses create a new cognitive environment, with its own unique syntax and its own unique semantics (the sum of all the services that social media offer)” (p. 352)

It is a new media form made as a hybrid of existing media, as well as new functions not seen before, such as the like, which radically has changed the internet.

The first way of accessing Facebook that will be looked at, is through a computer. To use the computer to access the Facebook platform, you need to open a browser, type the

address to go the page, and write your login info. Then you'll see something like this:



(Screenshot of Facebook browser version (Firefox) with names removed, 6 May 2017)

There doesn't seem to be any really specific visual features that can not be experienced on other sites. It is more about how these elements act together and create the media reality that the user perceives. The site has a horizontal header bar in the distinctive color that has become synonymous with the platform, and is otherwise divided into several vertical columns. The top bar has a search function where one can search for friends, profiles or subjects. And to the right in the top bar are notification icons which show new friend requests, messages, or notifications. The News Feed is the left middle part. Here you are shown content of other profiles either personal ones or public pages. It does not have to be content another profile has actively chosen to share like a post. It can also be a post that a friend interacts with through a comment, like, attending an event or another activity which is deemed interesting to see for the user. It also includes advertised content from organizations who have paid for access to people's news feed, even though they don't follow them. Previously, ads were only present in the lesser column to the right, now they are also present in the news feed itself. This is possibly because a large number of people installed ad-blockers, which identifies advertisement on a page and removes them, making the advertisement reach less and thus less valuable to the advertisers and Facebook. But even for people who had not installed ad-blockers the News Feed would

still be a more valuable place to advertise, because it is the main attention staple of the platform.

The News Feed can be identified as the focal point through several features, though takes up a smaller part of the screen than the parts that are not the News Feed. It is the widest of the columns the page is structured by under the header bar, and two of the other columns are characterized as lists with small items. The left is a list of categories and the right deals with friend activity. The upper two-thirds of it list summarizations of recent, chronologically sorted activity by friends, the lower third showing contacts who are online at the moment. If there was any doubt regarding the news feed as the main focal point, it becomes evident when the user scrolls down the page. The header and the two outermost columns remain static, the smaller of the middle columns moves a small amount before also becoming static, while the news feed continues to be dynamic and the content moves upward similar to moving ones vision down a list.

The content of the news feed is sorted into delineated boxes similar to a traditional newspaper. Such a box is called a post, one for each piece of content from another profile. As is evident in the picture, when the page is opened, one post is visible. At the top of the news feed is a space inviting the user to post their own content to share with their network. It illustrates Facebook as a platform where one shares content, that the top option is devoted to that function. But when the user scrolls down, this stays at the top of the list, and thus disappears, and the user now more often than not, will be able to see more than one post. Often having more than one post in the field of vision, together with

the ability to scroll down to always find more content, facilitates a short attention span. There is almost always several posts vying for attention, and the user almost perpetually has to make a specific choice to disregard other content if they want to focus on a specific piece of content.

This is even more evident when you look at the visual setup of the smartphone app. It is the most popular choice for facebook use. The smartphone is also the preferred choice for accessing digital news in general edging out the computer (Mitchell et al 2016, p. 31). The visual setup of the smartphone app is more slimmed down to fit a smaller screen, and it almost correlates directly with the news feed column from the browser view. Here the news feed is the almost the only visual expression in the facebook app:





(Screenshots of Facebook App for Android with names removed, 6 May 2017)

Due to the setup of the news feed it is not surprising that the posts that contain visual content are more successful in gaining the attention of other users. When content is always in competition with other content, photos and videos are stronger than text. Photos and videos are more information dense than text, relaying more information and impressions on the human mind in a shorter time. They require less cognitive function than text which humans generally prefer, particularly when they are in a browsing activity as opposed to a goal-oriented one (Margalit, 2015). Facebook has nudged users in the direction of visual content for a while particularly video (Ingram, 2016). The company introduced an auto play function for videos in 2014, so videos would start playing

automatically as a user scrolled down the news feed. This is an aggressive move to grab the attention of the user, which is understandably necessary in such a competitive and information dense environment. This year they made the videos play with sound as a standard feature (Wagner, 2017), further adding to the intrusiveness of videos and strengthening the amount of attention they grab compared to other posts. As the interest of Facebook is to get as many users on the platform to use it as much as possible, while still being satisfied with their use, it can be assumed they encourage the content they have evidence of working.

Accessing Facebook through the computer is lighter version in terms of the invasiveness and domination of the news feed visually. There are more items on the screen on screen in the computer version, where the screen is already bigger. It fits the situation in which the platform is accessed. Accessing Facebook through the computer is more of a conscious, active choice, as computer use is a more comprehensive activity due to the larger size of the computer, and the more limited situations it therefore is used in. There are usually less distractions when using a computer, compared to a smartphone, so the computer version does not need to be as attention grabbing as the smartphone version which takes seconds to access and can be done in between activities, or even when doing other activities. While the computer has not become an obsolete part of Facebook the marriage of the Facebook platform and the smart-phone is what propelled its rise to all-encompassing levels.

The consequence of the visual setup of the Facebook platform, as well as the situation the surrounding the user accessing the platform on the smartphone, is that content is always in strong competition with other content and activities for attention. For news organizations this means that they are competing with numerous other posts of numerous other subjects in the feed. The setup of Facebook and the fact that it has become a hub for everything online further adds to the woes of the news media, particularly newspapers, which have been present for while with the speed of digital media ability for instant distribution that reaches a large audience within moments (Logan, pp. 195, 93, 207). News content needs to catch the attention of the user quickly to have them click on the article, particularly the users who are not actively looking for news, and that is a challenge for a lot of serious news content that does not necessarily catch the attention

of a potential reader within seconds, particularly when competing with lighter forms of content such as entertainment items or the activities of close friends. The click on the article is still the most important metric for digital news outlets to assess visits on their site, and the visits to their site in turn influences advertising revenue. Unsurprisingly, several news outlets have adopted different forms of enticing visuals and language or leaving out important information in the headline, in order to get users to click on the link and go to their site. In its most obvious and unapologetic form this is called click-bait. It is a delicate balance, if you use too many click-bait techniques you risk the user disregarding it due to obvious baiting, and in the long term it can affect the standing up the news outlet. But on the other hand if you give away the main content of the article, or fail to make it exciting, you risk the user not clicking on it, leaving you without site visits and ad revenue.

One type of content that is heavily affected by this reality of the news feed are naturally articles that had the main focus of reporting a news item without much analysis, where isn't really possible to leave out much in the headline without it seeming like obvious baiting, particularly if the article, as most articles do, included a picture. An example could be "American music is playing surprise concert in town". If you write the name of the artist in the headline, or have a picture of them as the article picture, you risk people not feeling the need to go to site, losing out on ad traffic and thus monetary effect of the work put into the reporting. If you don't put a picture or name in the facebook post of the article, it can easily be seen as baiting and dissuade people from clicking on the article anyway. Another type of content which is hit by the competitive visual setup of the News Feed, which perhaps is more relevant because it requires more hours from journalist, are the longer in-depth pieces that perhaps is not conducive to an attention grabbing headline, photo or video. This pressures the news outlets to adjust their content to fit the competitive environment of the news feed where visual content is stronger. This is particularly the case for newspapers that traditionally have not made video content.

EdgeRank: The Sorting of the News Feed

Even more importantly than the visual setup of Facebook, is how the content is sorted.

The algorithm used is called EdgeRank. The debate regarding it has sometimes portrayed it from an overly simplistic or even ominous point of view, which unfortunately is uninformative or even directly misleading (Wong et al, 2016). Firstly, there is a reason it's useful. For the News Feed to be useful and be likely to provide relevant content to the users, sorting is needed more often than not. This is due to two factors: timing and amount of content. If the News Feed was only sorted chronologically, it would require the user to access the platform around the times where the profiles they follow post content. And if there was no sorting based on relevance, users would see content from all users in their network. That would make it much less likely for a user to see interesting content, and just as importantly, if not more, make it much less likely for other users to see the content that user posted. In 2007, about a year after implementing the News Feed, Facebook published numbers that said there were thirty thousand possible stories available to a user, and that they selected only sixty (0.2 %) of them per day (Adweek, 2007). While those numbers more likely than not are different today because users will probably have more friends on average than they did only a year after the company opened up to the public, as well as the higher frequency of use likely requires more than 60 stories per day, it illustrates why sorting is very useful.

It is probably not because users necessarily would find Facebook useless without the algorithmic sorting. It would just limit the time of day where the news feed was relevant greatly, and also making it quite random whether a user would see useful content when they logged on. It would probably not have allowed Facebook to expand the usage of the platform as much as they did, and it is possible that while Facebook was still found useful for keeping in contact with friends, primarily for messaging, the news feed would be regarded as nothing more than a curiosity with random results, which in turn also would limit the incentives of people to post content. It can be argued that their introduction of algorithmic sorting is what set them apart from the once strong rival Twitter. Twitter had created an open social network where you followed people based on your interests with content sharing in real time, while Facebook had created a closed network where your network was based on off-line relationships. Facebook's focus on algorithmic sorting allowed them not to be as limited by when content was posted, and together with their expansion of public pages, primarily for celebrities, businesses and

news outlets, they succeeded in having an app that could provide relevant content for a user whenever they logged on, and continued to grow while Twitter stagnated (Thompson, 2016a)

The general principles of the news feed sorting algorithm EdgeRank were presented by Facebook at their f8 conference in 2008. The sorting was shown to be based on three overall factors: affinity score between viewing user and edge creator, weight for this edge type, and time decay. Edges are actions users take – almost all of them interactions with other profiles - and each edge, besides clicks, can create a News Feed story. These actions include things like posts, comments, likes (reactions), change of relationship status, attending an event. The affinity score is a metric that measures how “connected” a user is to an edge calculated through how much the user interacts with the profile responsible for the edge. If the user messages with a profile, comments on, likes, or shares their posts, tags them, visits their profile, attends the same event, has many friends in common, is listed as in a relationship with them, and other things of that nature, will heighten your affinity score with that profile. Aside from this these actions also take into account the strength of the action, how close the user was to the profile that took the action, and how long ago the action was taken. The strength of the action can generally be said to be weighed according to the amount of effort needed for the action. A comment is rated higher than a like for instance, but generally not too much is known about the internal ranking of the different actions.

The edge weight describes the importance assigned to each edge created. It matters both which kind of action it is and the content of the action. For instance that a comment is higher deemed more interesting than a like, and that a photo or video is weighted higher than a text status or a link. The time decay means that new content is preferred and that each edge becomes loses significance as time goes on. This timer can be renewed, however, when new (inter)action happens on the post. The timer is also sensitive to how much a user logs on to the platform, and how long it has been since the user last. The precise relation in this regard is not known, but it would make sense if the news feed of a user who logs in infrequently is less sensitive to the time decay factor, so they are more likely to see older content because they are not as likely to have seen it as a user who logs in frequently (Birkbak & Carlsen, 2016, Kincaid, 2010, Widman, n.d.).

These criteria mean that EdgeRank values new items from closer relationships which are assessed on the basis interaction. This creates a value system where engaging with other users is of primary importance. Birkbak and Carlsen (2016) point out that EdgeRank not only imposes itself discursively through the sorting, but also rhetorically as co-author on posts through the visible counters of likes, shares and comments on each: “Edgerank distributes rhetorical power beyond the individual author of Facebook posts to other users and computer code whose actions ‘loop’ explicitly back into Facebook post” (p. 8). This has the consequence that certain content is promoted, not just through the algorithms mainly interactional criteria, but also by the choices of the users which conform based on previous experiences of the visible feedback that their posts get. Users will try to post content that succeeds in the form of feedback from other users, and will take clues from how their posts perform. The social impact of the like has been demonstrated to be substantial on teenagers (Sherman et al, 2016), where content with many likes is in turn more likely to be liked as well. It has also been and as a ranking system it has had an immense impact on online life as a whole (Luckerson, 2017), where it now also is a significant financial marker.

EdgeRank is the biggest drivers of Facebook’s success, but it has also raised significant concerns in relation to dissemination of information which is one thing when it is concerned with which of your friends’ pictures to show you, or which friend to stop showing posts from. It is another thing when it is concerned with showing you news items you are likely to agree with. The concern is that EdgeRank creates echo-chambers and filter-bubbles that strengthen human confirmation bias by showing people more content that they already like and tend to agree with (Pariser, 2012). When only looking at the features described so far, the accusation does not seem unlikely. If a user is only shown content that they interact with, from profiles they interact with it is certainly possible. The question hinges on whether a majority of the users interactions are of positive nature. If the user, for instance, followed ten different news outlets with varying ideological slants, and the user generally liked posts with content that the user agreed with or was positively aligned to, but on the other hand commented critically equally often on posts with which she disagreed or was negatively aligned to, according to the information relayed so far, the user would still see content from the from the profiles with which she generally

disagreed. However, two questions arise from this example. The first is whether a user is likely in the first place to follow profiles that overwhelmingly produce content that they disagree with. That seems unlikely, and it would lessen the opportunities to see content with which she would disagree and post critical comments on. The second question is whether Facebook would employ a mechanism to assess whether a comment was negatively or positively aligned. It seems possible that an assessment of a comment's emotional state can be made with the amount of data they gather, and the goal of Facebook is to keep its users happy so they continue to use the platform often. In that light it makes sense that positive actions would be weighted higher than negative ones, because even though a negative reaction can be useful in generating interest for content on the platform, too much content that creates negative or aggressive emotions for a user is likely to drive them away from the platform.

Another concern regarding EdgeRank is the amount of data it gathers on its users. Considering only the description given in this section of the information taken into account in calculating affinity scores, it is apparent that the platform gathers a large amount of data on its users. Gathering such a large amount of data on citizens with no transparency or oversight on who is allowed to access it is also a concern that can be raised in terms of Facebook's role in a democracy.

The Business Model of Facebook

A key aspect of understanding the world's dominant social medium is to understand their business model. Personal users do not pay for the app, neither for creating a profile nor using it. Public pages for businesses, brands, celebrities and such are not required to pay either, although they can pay for targeted advertising on the platform. Facebook makes its money from collecting data about their users and selling it to advertisers. The precise extent of this data is not publically available, as the company unsurprisingly as most corporations do not disclose its inner workings. However, from what can be known or deduced it is clear that the amount of data gathered is vast.

The sources for this belong to four different groups. One part is academic studies who extract publically available data from the site to answer different research questions

(Mocanu et al, 2016, Bessi et al, 2016, Del Vicario et al 2016, Schmidt et al, 2017, Alcott & Gentzkow, 2017). If this data can be mined from an external vantage point, it is safe to assume that Facebook has it too. A second source is studies where people agree to provide their own data, which then is mined by an installed application acting as a third party developer (Bechmann & Lomborg, 2015, pp. 54-72). The third part of the sources for information about data gathering is related to the in lawsuits against the company which have taken place in several European countries such as Ireland, Belgium and Germany and involving the Court of Justice of the European Union since the early part of this decade of which some are still ongoing. They are based on a report by The Belgian Data Protection Organizations (Van Elsenoy et Al, 2015) and information gathered by Austrian lawyer Max Schrems (Lomas, 2015, Lomas, 2016, Nielsen, 2016, Reuters 2016). The fourth part where information about Facebook's data gathering can be found is in their "Terms of Service" and "Data Policy, (Facebook, 2015, 2016). An option that is a little easier to understand for most rather than reading through detailed legalistic language is to request a downloadable copy of the data gathered from your profile. While it is implied in the description that is not a complete account of the data gathered, it contains info from 70 different categories (Facebook Help Center, n.d.)

The data can be divided into three categories which are defined by the degree of conscious knowledge they are given. The first category of data includes that required when making a profile, which are name, age, sex, email address. The second are those provided voluntarily and usually relatively consciously by the user, since many of them are meant to be seen by other users in a form of self-representation. These include things like city of residence, hometown, phone number, birthday, relationship status, current and previous workplaces, education and place of education, family members, religious beliefs, an "about me" section, names of other social media accounts, and more. The third, and most opaque and overlooked, but largest category, is concerned with the users' activity both on the Facebook platform as well as outside it on other web pages. It includes the users' facebook friends list, the public pages they follow (like), which other profiles they interact with, the posts and comments they have liked, events attended or interested in, which external links they click on, location data, both from the action of checking in, but also from location services on smartphones as well as from IP-addresses from the network

the user is logged into either on a phone or computer, photo locations provided, the photos themselves, metadata analyzed from the photo, facial recognition, and more (Van Elsenoy et al, 2015, Facebook Help Center, n.d.). Outside the facebook platform information about browsing activity on other sites, for instance how long you spend on another site from a link you clicked (Somaiya, R., 2014). This is done through the like-button extension that more than 13 million sites have integrated as well as tracking cookies (Gerlitz & Helmond, 2013), as well as from certain extensions that use Facebook for log-in, where the most famous are Instagram, Spotify, and games (Bechmann & Lomborg, 2015, pp. 55-56).

The data is used to profile the users. It can be used to personalize the users experience and filter the content on the platform to improve their experience by trying to provide them with content they are likely to be interested in. However, the profiling information is also very useful for organizations such as advertisers and can be used for predictive behavioral targeting. It is where big data and the growth of the World Wide Web meet human accumulation logic. Huge numbers of data can be processed due the technological advances of computing technology and because people to an increasing degree engage in online activities for a wide array of services in their life. Such business models which are a feature of tech giants such as Google, Facebook and others has been described in academic literature as surveillance capitalism, dataveillance, and data economy (Zuboff, 2015, Öngün & Demirag, 2014, Bechmann, 2013, Bechmann & Lomborg, 2015, pp. 54-72). Regarding what Facebook's data has been used for, the company was named as one of the information providers to the US international surveillance program detailed in the documents leaked in documents by Edward Snowden. The company denied that it had provided direct access to their servers, and that they only provided information to the extent required by the law (Lardinois, 2013). This was not a reassuring answer as many Congress politicians described the program as known and lawful (Savage et al, 2013). The program is not known to have been terminated since. It is a democratic problem if the wealth of data that Facebook gathers on its users is made available to the US government. While the reasoning provided for the data acquisition is to prevent terrorism, it is not hard to imagine it being used in other problematic contexts.

Bechmann (2013) defines Facebook's approach as vertical data strategy. This

means they use one main access point to gather a large number of detailed data from its users, as opposed to Google which uses a horizontal data strategy where they build and acquire a large number of platforms where they can lesser amounts of data on each. Facebook's focus is for their users to utilize the single platform for as many different things as possible, and gain a large amount of data that way. Google wants their users to use a wide number of services that they own to gain a large amount of data. In 2013 they had over a hundred different services of which the most known were Google Search, Youtube, Google Maps, Google Chrome, the Android operation system which is used on smartphones made by Samsung, Sony HTC, Huawei, but also includes many services that few people know about even if they use them. The different data strategies lead to different user interaction and attention. While Google can rely on the relevance of their services for specific tasks, Facebook has to rely on reputation to uphold a large market share. They will lose users for a large amount of tasks if their brand takes a hit, while Google with different entities are not vulnerable in the same way if one of the services, aside from Search, takes a PR hit. This informs Facebook's public strategy where they have to be more proactive or responsive in their public relations and address potential problems before they grow too large.

There have been a number of examples of Facebook taking measures to address PR issues. One has been trying to address click bait. (Somaiya, 2014, Babu et al, 2017). Another is the allegation journalists curating the "Trending Topics" section with political motives which led to attention from politicians from Congress, which several employees as well as Mark Zuckerberg as CEO addressed. Changes within the organization were also made, including firings (Nunez 2016, Stocky 2016, Stretch 2016, Zuckerberg 2016). Then there was the striking down allegations of selling ad-targeting based on users' emotional state (Lomas 2017). This is interesting because researchers from the company had published a study where they had experimented with affecting unknowing users' emotional state through manipulating their news feed. The users posted more positively aligned posts after exposed to more positive posts, or a lack of negative posts, and posted negatively aligned posts to the inverse. Those negatively exposed also showed a withdrawal effect from Facebook. (Kramer et al, 2014). Though the research was consistent with Facebook's Data Use policy, where informed consent for such research is

constituted as given, it was, unsurprisingly, a study that was met with strong criticism. Facebook's response also referred to their data policy and explained that such studies were done to improve their services and make content as engaging as possible (Hill, 2014, Booth, 2014). The company also faced criticism last year over the option of targeting ads for "ethnic affinity". Their explanation was that it was not based on ethnicity, but likely interest in content related to ethnic communities based on a users activity. They have since removed the option for ads relating to housing, employment at credit (Ha, 2016). The fallout from these criticisms was held under control, and the company has not experienced any user loss as an effect of any of them. However, they were still vigilant when it came to most salient example of this, which garnered international attention. This example was the fake news discussion that flared up around the American election. Here Facebook was accused of being fertile ground for the spread of political misinformation, which was suspected of affecting the election. The criticism was kept alive when Donald Trump, a candidate that had made several provably false statements, won the election (Silverman 2016, Silverman & Alexander 2016, Silverman & Singer-vine 2016, Silverman et al 2016, Sydell, 2016, Wong et al, 2016, Herrman 2016). Subsequently, the governments of Germany and France which were facing elections soon got involved in the criticism (Frenkel 2016) and Facebook responded with measures to combat it Fake News, making it possible to flag content as fake, as well as working with fact checking organizations and subsequently including information that the contents of an article was contest from numerous sources when people tried to share it (Toor 2016, Politiken, 2017). These measures, as well as describing the importance of Facebook's maintaining of good PR, also open of different discussion of their role and responsibility as a powerful platform where more than a fourth of the worlds population are active in sharing information, many often, and when the nature of that information is important and relates to the important societal matters such as elections. The fake news debate will be addressed in detail later, as well as the more general discussion.

While the data strategy of Facebook is still generally vertical, some of their activity can also be characterized as horizontal. These are moves such as buying Instagram, a social medium primarily for smart phone based on photo sharing, in 2012, buying the messaging app Whatsapp in 2014 (Frier 2014), and moving the private Facebook

messages to its own app called Messenger in 2014. Messenger had a billion users in April 2017, Instagram reported 600 million active users, and Whatsapp had 1,2 billion. There was some attention paid to Facebook's purchase of Whatsapp in the time leading up to it. But the debate centered on concerns that Facebook would use the private data that users had given to Whatsapp with the understanding that it would not be used for advertising purposes. The fear was that this would be done by changing the privacy terms as had been the case after the purchase of Instagram (Rawlinson, 2014). The concerns did not center on the further growth of the already very large market share of the social media and communication world that Facebook would enjoy after the purchase.

Two years after Facebook's purchase of the app, Whatsapp's model of charging a very minor yearly fee, and not generating revenue through advertising was changed. The app became free of charge to further expand its user base, particularly outside western countries where credit cards were not common, which presented a hurdle a lot of potential users in signing up. The app would then allow companies to communicate relevant content of a customer service nature with users through the app to generate revenue, while also acknowledging that the merging with Facebook had allowed them to disregard a large part of the focus on generating revenue (Hern, 2016). These actions indicate that obtaining Whatsapp was more of a question of obtaining a larger market share and stifling competition than about making money. In relation to the Whatsapp purchase Facebook was recently fined 110 million Euros by the European Commission, for not disclosing at the time of the purchase in 2014 that it was possible to match the identities of Facebook users and Whatsapp users, a possibility the company had been aware of. Such an option naturally affects the competitive light the purchase could be viewed in (Reuters, 2017). When Facebook occupies such a large market share of the social media market, and thus a large part of the collective attention of the world, it will continue to put pressure on news organizations to operate within the confines of the platform, and be subject to its setup, which is not necessarily conducive to informing the public of a democratic society.

Facebook owns the 1st, 2nd, 4th, and 7th spot on the list of most popular social media, besides them, the only other spot in the top 7 that doesn't exclusively operate in China, which blocks western social media, is Youtube at 3rd with a billion monthly users.

This has led to people to point out that Facebook is now at monopolistic status. One time competitor Twitter is basically out of the competition as its user growth has just about stagnated right above 300 million since early 2015 (Statista, 2017c). If not a clear cut monopoly then at least Facebook has become so big that it can kill up and coming competitors, and essentially discourage anybody from trying. Something that supports this case is how Facebook has copied key features of up and coming social media app Snapchat and added it both to Instagram, Messenger, Whatsapp and the Facebook app itself. When a key feature of Snapchat, the stories feature, was added to other social media where most users have a much larger network, it led to a significant drop in user growth and activity for Snapchat and a plummet in the stocks, and while it still keeps a significant hold on those aged 13-25, marketers already recommending Instagram over it, and its ad-revenues are estimated to drop steeply the near future (Wells, 2017, Constine, 2017). If Facebook has monopoly on social media, they have a monopoly on a large part of communication, which presents problems from an even larger perspective than the only economic issues of competition and prize setting that occur when a more traditional business has monopoly. Aside from having a near monopoly on social media one of the main internet activities of the 21st century that allows them to gather very large amounts of data related to a wide variety of human activities, like Google does through Search and other services and Amazon does through trade and cloud computing (Mandag Morgen, 2017), a large part of communication will happen within the parameters they have deemed important. For EdgeRank it is a bias towards promoting content that other people interact with in a competitive visual environment that facilitates a short attention span.

It can be argued that nobody is forcing people to use Facebook for either general communication or news consumption, which is true in a strict sense. However, one thing is the ideal, which some people may be able to live up to, another thing is reality, and the company has been successful in gaining users, and expanding usage times. Research implies there is a synergy-like effect in choosing to sign up for Facebook, where people are influenced by their peers and rely on other people's decision to sign up. People report signing up for the platform even when they have significant privacy concerns to be part of group activities. Therefore Facebook usage should not be seen only as an individual activity but also a collective activity and should be discussed as such (Bechmann, 2014).

This more individually focused research lines up well with a broader, macro-view of why Facebook has succeeded in gathering so many users, continues to, and is hard to challenge in current situation. It is because some key factors make internet based businesses operate under different circumstances than was seen previously. Thompson (2016b) describes this as aggregation theory which:

“...is about how business works in a world with zero distribution costs and zero transaction costs; consumers are attracted to an aggregator through the delivery of a superior experience, which attracts modular suppliers, which improves the experience and thus attracts more consumers, and thus more suppliers in the aforementioned virtuous cycle.” (Thompson, 2016b)

The consequence of this is that the big get bigger, and the state of equilibrium that market is moving towards under aggregation theory is monopoly. It is not like monopoly in the conventional sense because consumer choice is not being limited by controlling supply, distribution or infrastructure. The anti-trust laws of the US are not equipped to handle this since they focus on limiting harm to the consumer mainly in the form of the higher prices and limited choice that have followed traditional monopolies. It is also very different from the situation that other news outlets attempt to merge. While Facebook is more than a news outlet, is also that, even though it doesn't produce the content itself. When newspapers look to buy each other, or ask for exceptions from anti-trust laws, it is often viewed with judicial and legal interest (Laurson, 2012, Stucke & Grunes, 2011). One example from Southern California shows that newspapers are still subject to anti-trust laws in an American context, and it isn't taken into account that their main competitors are no longer in found in print, but online (Ross, 2016). Facebook therefore seems to have significant advantages in its growth when it is compared to news outlets, and though Facebook is still reliant of news organizations to generate the content, the size of the platform and the collective attention that is paid to it, makes them the controlling actor with the online news organizations trying to catch up. Facebook therefore has several aspects working in its favor to boost the popularity of their product and therefore it not as simple as people individually stopping to use Facebook to lessen the company's dominant

position. There are strong reasons drawing people to use the platform. Facebook user totals have continued to grow, coming in at 1,93 billion monthly users worldwide in the first quarter of 2017 (Statista, 2017) and it seems legitimate to raise the issue which McLuhan already did in the much different media landscape of the sixties:

“Leasing our eyes and ears and nerves to commercial interests is like handing over the common speech to a private corporation, or like giving the earth’s atmosphere to a company as a monopoly. (...) As long as we adopt the Narcissus attitude of regarding the extensions of our own bodies as really *out there* and really independent of us, we will meet all technological challenges with the same sort of banana-skin pirouette and collapse.

Archimedes once said, “Give me a place to stand and I will move the world.” Today he would have pointed to our electric media and said, “I will stand on your eyes, your ears, your nerves, and your brain, and the world will move in any tempo or pattern I choose.” We have leased these “places to stand” to private corporations.” (1964, p. 68)

Facebook’s success exists in harnessing technological possibilities to developing a platform that engages every sense, and is involved in large parts of human social life and communication. Further spurred on by the aggregation advantages of the internet age, they are a channel through which a lot of communication goes through, making them one of the main data-hubs of the internet and there are legitimate questions that can be raised concerning the consequences of this.

News Feed effect: Direct Communication of Politicians

The usefulness of Facebook, has not only occurred to citizens and news organizations, but also politicians. They increasingly use the platform to reach the public. This is particularly the case when they are campaigning for office, but also for more regular occurrences of politics. Facebook has made it possible for politicians to circumvent the traditional media and communicate directly with large numbers of the public. This puts pressure on news organizations. They have lost a significant part of their gatekeeper role, and therefore a large part of their power and importance, and it is not uncommon for them to play catch-

up by reporting on what politicians have expressed on social media and the public response there. Research on politician's use of social media from its earlier days, looking at the issue around the general election of New Zealand in 2011, found that while a good number of politicians expressed interest in the medium's potential for citizen engagement, most used it for one-way communication and a way to be visible and cultivate a trendy profile (Ross & Bürger, 2014).

A recently published study of political conversation on social media in Denmark, one of the countries in with the highest social penetration both for the population and politicians, particularly Facebook, found that there was a high degree of political conversation taking place on the public Facebook pages of politicians (Sørensen, 2016). This was both the case between citizen and politician and between citizens, though the fact that a few MP's responded engaged a lot in conversation with citizens pulled up the average, while a many only responded infrequently or not at all, using it as a one-way tool. The number of citizens commenting was also relatively high, and therefore does not seem to be confined to a particularly interested group of people or an elite. The study also found that some politicians were better than others in getting likes and comments on their posts. Some of this correlated with their higher number of followers on their page, which also generally corresponded with vote shares. However, the engagement on some posts could did not correlate with this. Though it was not within the scope of the study, it is logical to expect that the reason for the post's high engagement rates is related to the content of the post itself, possibly the subject, or the framing of the subject.

The main finding, that politicians generally engage with citizens on political issues, goes against findings from similar, earlier studies from New Zealand, Australia and Norway, which found politicians mainly use Facebook as a broadcasting tool, with limited interaction with citizens. Sørensen points out some reasons for the difference in results. One reason might be explained by the sampling period in which the other studies generally sampled close to an election while this study did not, focusing on a period with a more "everyday" nature. Another reason for the difference in the results may be due to cultural differences with Denmark having high levels of political engagement and high levels of trust in the political system in Denmark. But a third part of the explanation can also be the high levels of internet and social media penetration in Denmark. If this

explanation is the main reason, Denmark might be a window into possible futures for other countries, where a large part of political broadcasting and communication takes place on Facebook. While this explanation does have some power, it seems sensible that all three explanations play a significant role, with the cultural reason likely being the stronger.

In the US, social media also plays a significant role in politics now. During the 2016 American Presidential election, Trump, Clinton and Sanders were highly active on social media. Though their strategies differed it could generally be said about all three candidates that their social media strategies were highly controlled, and focused on getting their message out rather than interacting with citizens. All three were active both on Facebook and Twitter. Clinton almost exclusively linked to her own campaign website, almost entirely bypassing the news media in terms of online content. Sanders to some extent linked to news media sources to get his message across, while Trump did it relatively frequently. Clinton never used messages from the public in her social media profile, while Sanders did it infrequently, and Trump employed it as a significant part of his strategy. In line with the setup of Facebook's news feed, video was a significant feature in the campaigns' social media posts. About a quarter of Clinton's and a tenth of Trump's posts included videos. Sanders also used video, but much more often on Facebook than Twitter (Pew Research Center, 2016b). Campaign advertising has been found to have a meaningful effect on a candidate's vote shares (Spenkuch & Tonatti, 2016) so expanding advertising and communication to social media is not surprising. The politicians can be expected to follow the audience. The interesting thing is, though, that social media allows for a bypassing of the traditional media. Social media allows politicians greater control over how their message is being transmitted and when. While the news media also have the benefit of quick transmission of content, they are pressured economically by the easy and free sharing of information on the internet, and the fact that politicians now can bypass them is another source of pressure. The news organizations need attention to generate revenue, which pressures them into working under the premises of social media.

In terms of the effects of social media on politicians' communication two major directions have been identified and argued for. These are equalization and normalization.

Equalization is the attitude that social media levels the playing field and allow smaller parties to catch up to bigger, richer parties, since social media is a relatively cheap way of reaching a large audience. The normalization explanation contend that the new technologies reproduce existing power structures because large parties have a higher level of professionalism and better funding which allows for better strategic planning and production of content. In this regard, it is important to consider the political context and system of a given country. In addition to these general effects, there is also interesting effect of social media potentially allowing candidates more autonomy, a decentralization of party control (Jacobs & Spierings, 2016).

Applying these concepts to the American context, equalization has very poor conditions, and is unlikely to occur on the political level of parties and candidates. This is due to the two-party system where it is just about impossible for other parties than to two large ones to get candidates elected for Congress with the high minimum threshold. It seems possible, however, that an equalizing effect can occur regarding specific issues where grassroots organizations with lower levels of funding can reach a larger number of people than before, and have a better chance of swaying public opinion. Regarding candidate autonomy and decentralization of party power, Donald Trump can be taken as an example. He had a higher ability to reach a large audience through social media even though he was not one of the preferred candidates of his party, and he often didn't adhere to party lines and their preferred strategy. Along with the visual setup, the algorithmic sorting of EdgeRank, the availability and ease of use of Facebook with the possibility to reach large amounts of people directly with it, an option politicians now are using significantly, adds to the pressure put on news organizations, which creates new challenges for citizens being informed on political matters. It can be problematic for citizens to get their news directly from candidates, which have an agenda of gaining support.

News Feed effect: Fake News

Facebook has been criticized for several things. A group of complaints that configuration of its news feed promotes content in a way that hurts people's ability to stay informed. The most salient one recently has been the accusation that it was too easy for fake news of biased pages to spread on Facebook during the American presidential election that took place in 2016. A study showed that fake election news outperformed real news on Facebook in terms of shares, reactions and comments over most of 2016 (Silverman, 2016) and that it was likely to have had an impact on election outcome, since polls showed two thirds of Americans believed the Fake News stories they saw (Silverman & Singer-Vine, 2016). The fake news stories targeted both candidates, but the ones favoring right-wing content and Trump was consistently more false (Silverman et al, 2016). Following the election the issue has been studied further, but already in these studies there were clues pointing to that they could not be taken as strong evidence for the impact of fake news. Among the 3015 people participating in the Silverman & Singer-Vine study (2016) only 16,8 % on average reported to have seen the five news stories the study focused on, with the most seen story coming in at 22 %. These numbers compared to 29,5 % for the real stories, where the most recognized story was recalled by 57 %. That means the number of respondents answered regarding accuracy were between 389 and 186, which increase the statistical uncertainty significantly, and questions whether the results can be taken as strong indicators of anything.

Another point is that it does not necessarily make sense to look at overall engagement as an indicator of support or influence such as implied in Silverman (2016). This implication is present both in the case of using words such as "...Fake News Stories Outperformed Real News..." in the headline, and in talking about "the power of fake news" when providing no other metrics than shares and reactions. The only thing that can generally be taken as an indicator of support is the like. It is of course possible to give it ironically, or to give it to massage one's news feed in a particular direction. However studies show that users are not likely to do that because they fear the like risks portraying them in a bad light to their network (Bechmann and Lomborg 2015, p. 61-62). Reactions, a rather new feature introduced in 2016, where instead of a like it's possible to express the standardized action of either "love", "haha", "Wow", "Sad", or "Angry", can not as a

whole, aside from the “love”, be said to express support. A comment, which has no limit on length, can express a multitude of attitudes on a scale between support and critique. It can express more than one attitude, or can express something that can't be categorized on a scale. A share expresses that the user wants to share the post with their network, which can also be done for a number of reasons that does not necessarily involve support. So pointing to fake news as an influencer only based on engagement numbers is problematic. It is not hard to imagine that fake news, which is often of a somewhat outrageous sort, can drive engagement based on other reasons. People are likely to interact with outrageous news if it creates a strong emotional reaction, for instance if they disagree a lot, find the claim laughable, or just find it shocking. More extreme content seems more likely to create a reaction than something of a more regular nature which generally correlates better with real news story regarding political news. Also, due to EdgeRank's sorting where engagement is rewarded by being spread further, news distributors, especially of the Fake News variety driven by clicks of which there were many around the election (Sydell, 2016, Silverman & Alexander, 2016), are likely to phrase headlines that are that elicit engagement.

There is, however, a legitimate criticism of Facebook to take up in this context. Since EdgeRank's setup rewards content that is interacted with, it will tend to promote more shocking content, because people are more likely to react to it. This is both due to the algorithm criteria, but also due to the norms that the criteria create because organizations posting have learned that interaction equals reach. This is problematic from a news dissemination standpoint because the most shocking content is not necessarily the most relevant content for the user. Interaction does not always equal interest, as it does in EdgeRank. There might be a good deal of content a user is interested in seeing, but doesn't interact with, or interacts with in a limited manner such as a like, and there might be content that doesn't necessarily interest the user much, but grabs their attention and spurs them into deeper interaction such as a comment, because the nature of the content is controversial or framed controversially and hard to ignore. This is relevant both from the vantage point of a user's general interest, but certainly also, even more so perhaps, from the point of view of seeing knowledge that helps the user in being an informed democratic citizen. In this sense, it can be argued that Facebook runs into problems similar to those

traditional news media of print and TV have exhibited for decades, particularly when they operate solely on revenue generated from advertising, because they will favor the more sensational stories in an effort to gain a large reader- or viewership rather than necessarily the most relevant and useful stories (Herman & Chomsky, 1988, pp. 13-17).

In light of this, the News Feed is an environment where Fake News has good conditions for spreading due to its controversial nature that engages both those for and against. The carry-over effect of the spread to voting behavior is more questionable however. Shortly following the election, this area was studied, and the findings should blunt the view that it was the deciding factor. Allcott and Gentzkow (2017) find that the use of Facebook is generally consistent with the findings of the surveys of Pew Research center, presented earlier in this report, which indicate social media as a significant news source in America, but the dominant one. Their respondents spent 66 minutes per day reading, watching or listening to election news. 25 minutes of these were on social media, which amounts to 38 percent. 14 percent of the respondents listed social media as their most important news source.

Pro-Trump stories circulated at a rate about three times higher than pro-Clinton stories with them being shared on Facebook 30.3 million and 7.6 times respectively. The rates of both seeing and believing were a great deal higher for true than fake stories, broadly consistent with Silverman & Singer-Vine's (2016) findings in their smaller sample size. 15 percent of people reported seeing the fake news stories and 8 percent report believing them. However, placebo fake news articles added to the study were recalled and believed at the same rate as the fake news that had actually circulated, which point to a significant rate of false recall. Regarding tendencies of different groups, people who cited social media as an important source of news, and social media users with segregated networks were more likely to recall seeing fake news. Republicans and independents were more likely to recall seeing fake news than Democrats. Social media users were more likely to believe fake and placebo articles. People with high school or less education were more likely to believe fake and placebo articles than people with more education, and Republicans are more likely to believe Fake and Placebo articles than Democrats or independents (Allcot & Gentzkow, 2017, pp. 14-16).

Ultimately they found with 1.2 percent of the population seeing the average fake

news article and comparing it voting data and established data on the impact of a TV-ad that:

“a single news article would need to convince 0.73 percent of voters who saw the article and would not otherwise vote for Trump to vote for him. For fake news to have changed the election outcome, one fake news article would need to be 36 times as persuasive as one political [television] ad” (p. 20)

For one fake news article to have had such a strong effect seems very unlikely. While they point out, that they did not have sufficient numbers to do a state to state calculation, and therefore calculate on the basis of an equal amount of change without fake news in all states, it is nonetheless significant results. Another aspect that is not covered in this study is whether the proliferation of fake news on social media kept some people from voting. If a limiting effect of fake news persuading some, as well as keeping others from voting in a specific state, it could have had an effect on the correct voters, rather than a large amount of voters in a tight election. However, while this area would be an interesting subject for further study, several things likely needed to line-up for fake news to have had an effect. It does not seem impossible, but there is no research on it at the moment, so the research there is should carry more authority. So while the findings regarding which groups who believed fake news allow for continued skepticism of Facebook as a useful source of news, the main finding show that any direct effects on the election outcome is likely overstated.

Fake news on Facebook impacting the election shares several characteristics with moral panics of the past. It is a condition that emerges to be defined as a threat to societal values that is presented in stylized and stereotypical ways, which people of socially acceptable attitudes rush to condemn (Cohen, 1987, pp. 9, 22). The fake news discussion contains key elements such as heightened levels of concern, substantial agreement that the threat is real, either in society as a whole or in specific segments of society, and that there’s a general assumption that larger numbers are engaged in a practice than what is the case (Goode & Ben-Yehuda, 1994, pp. 33-36). However, the fake news issue lacks the key aspect of perceived social deviance from the expected societal

norms that is also a general feature of moral panics (Cohen, 1987, pp. 13-14), as well as group on which blame is cast or hostility is pointed towards. Some might view Russia as an enemy sowing confusion with the sturdy allegations of them intervening in the election. However, regarding the production of fake news production around the election, other entities were responsible, both domestic and foreign. There were the standard partisan groups, which were also existent before the election (Silverman et al 2016), and site administrators producing content focused on gaining clicks for monetary gain both domestic (Sydell, 2016) and foreign (Silverman & Alexander, 2016). So while a full blown moral panic can not be said to have occurred, some key features were present, mainly the aspect of viewing a problem to be of disproportionate larger than it likely was.

The direct effect of fake news seems to have been overstated, but other issues around it have come to light, perhaps because of the issue's perceived magnitude. According to a Pew survey, 64 % percent of Americans now believe that fake news is sowing confusion (Barthel et al, 2016), and such distrust might very well be more problematic than the circulation of fake news stories themselves. If trust in news organizations erodes and a majority seriously doubt they actually be informed about the political process it is a serious democratic problem. It can lead to heightened beliefs in conspiracy theories which are problematic because such theories explain complex events or problems in a simplified light, and with oversimplified solutions (Sunstein & Vermeule, 2009). If such theories inform voting decisions it seems likely that such voters will lean towards candidates offering simple solutions to complex issues, or base their vote on high degrees of directionally motivated reasoning than normally, a concept which means letting opinions be formed by already held beliefs, rather than allowing views to be informed by facts. This is problematic even with factual information present, and will likely expand if factual information is not perceived to be obtainable (Nyhan et al, 2017). Another potential problem associated with distrust in the ability to stay informed is apathy to the democratic system. If people don't believe they can be well informed, it's likely to follow that they will not bother to vote. The US already does not have a history of high voter-turnout averaging averaging 55,39 % for Presidential elections between 1960 and 2012 (Peters, n.d.), and estimates show that turnout was 58 % in 2016 close to the 58,6 % mark in 2012 (Bialak, 2016).

It should be noted however, that the survey question of Pew does not say that wide distrust is necessarily the case, or even that people feel confused themselves, just that they perceive a general confusion. It's possible to perceive a general confusion while not being confused themselves, which is not useless, but it is possible to wrongly perceive others being confused. It is less precise to answer to a general feeling of misperception than answering to your own perception. In this regard, 39 % feel very comfortable in their ability to detect fake news, and 45 % are somewhat confident (Barthel et al, 2016, p. 6). It is not a reassuringly high number, and it is something to monitor in the future in the current high speed social media landscape of politics and media.

A problem which has been identified on the heels of the fake news debate which needs more immediate attention, as it could greatly hamper a functioning democracy in the future, is the ability of students to assess information online. Researchers from Stanford University found that students at middle school, high school, and college levels had great difficulty with age appropriate tasks of information evaluation online. The tests were done on schools from different states with different levels of funding, and both loose and strict acceptance rates. At every level large majorities were not able to apply expected reasoning in tasks such as discerning between news and sponsored content, assessing the trustworthiness of claims made in conjunction with a photo posted on a photo sharing site, and whether claims made by organizations on social media could be informed by an agenda (Stanford History Group, 2016).

This goes against a common strain of thought in which it is believed that younger generations who grew up with digital media and navigate its functions with ease can be expected to perform well in such tasks as natives of the digital world. This study shows that there is no strong connection between being skilled at using digital products and being critical towards the content produced for digital platforms and the processes behind. This field needs to be a focus of the American education system in an increasingly digitized world, where speed of distribution is increased, and the power and influence of key gatekeepers are lessened, if civic reasoning, as the researchers describe it, is to thrive and subsequently democracy is to function.

News Feed Effect: Filter bubbles

Another major issue widely discussed regarding Facebook and news dissemination is the concept that it creates filter bubbles. The concept entails that people are shown more content they already are positively aligned towards, or are likely to be positively aligned against, because EdgeRank filters the news feed to give more of what a user interacts with. The reason for this is Facebook's goal of having a platform that the user find useful and engaging, so they keep coming back.

Group Polarization

The consequences of people interacting only with similar opinions have been researched in offline groups, and polarization has been observed to occur. Polarization occurs in groups due to two main mechanisms. First, there is a desire to maintain reputation and self-conception by people. This means that a person cares about the opinion of those in the group, and will adjust their opinion to fit it, and the person will also adjust their opinion fit their own self-perception relative to the group. If a person views themselves as one who usually has a moderate stance on an issue, they adjust it to fit to the moderate stance in that group, regardless of whether that is a moderate stance of all opinions possible on the issue. This relates to the second major mechanism of polarization; that groups have limited "argument pools". When the amount of available arguments is limited it also limits the possibilities of the direction the opinion of the group can take when deliberation occurs. Polarization is not only a bad thing. In a democratic society these group dynamics play a significant role in asserting interests (Sunstein, 2002). However, the added speed with which such grouping can occur in a digitized society can intensify such group polarization to a problematic degree. The dangers of such groupings happening on the internet, creating echo chambers, similar to filter bubbles, was also made already in its early days (Sunstein, 2001). As social media flourished with the added effect of algorithmic sorting of information, the subject gained further attention. Pariser's book where the term Filter bubble was coined came out in 2011. The debate stayed at lower levels for years, mainly involving people within the tech or news industry, but gained wide interest during the recent election campaign, where the accusation was that it was a key contributor to polarization of the public in political matters.

Statistics show that politic polarization has increased drastically in America the last 20 years. It shows up in the percentage of people viewing the opposing party "very unfavorably". That number is up from 21 % in 1994, to 58 % in 2016 of Republicans attitudes towards Democrats, while the number has risen from 17 % in 1994 to 55 % in 2016 for the other side. Regarding an "unfavorable" rating the numbers are up from 74 % to 91 % for Republicans and they have gone from 59 % to 86 % for Democrats in the same time period. While it would not seem uncommon or particularly alarming to view the other party unfavorably, there is after all a reason a person doesn't support them, viewing them very unfavorably does not seem like an expectable or desirable outcome. The number of people who view the other party as a threat to the country has also risen. For Republicans it was 45 % in 2016 compared to 37 % in 2014, while it was 41 % for Democrats in 2016 as opposed to 31 % in 2014. Negative attitudes towards the opposing party are slightly more important to the voters than positive attitudes towards the party they favor. For Republicans 68 % report viewing the Democrats' policies as harmful to the country as a major reason for identifying with the GOP, while the number is 64 % for the statement of "the Republican Party's policies are good for the country". The numbers are in the same ranges for Democrats with the slight edge being flipped with 62 % citing Republicans being harmful and 68 % citing Democrat policies being good (Pew Research Center, 2016a).

Polarization effects are at the heart of the filter bubble question, where significant portions of this have been attributed to the internet and social media. Boxell et al, (2017) recently published a study on the correlation between polarization and the internet, by aggregating a number of studies on polarization and compared them to numbers of internet use for different age groups. They found that the increase in polarization was significantly higher for the groups that used the internet least. It was found that polarization had increased to a much higher degree for the older part of the population. Those aged 75+ saw an increase in polarization by 0.38 index points between 1996 and 2012, for the 65+ group the number was 0.32, while the number was 0.05 for those aged 19-39. Looking at the different measurements of polarization that went into this study, the effects seem to be more partisan shifting than actually shifting ideology. From 1972 to 2012 there have been gradual and ultimately large increases in polarization of partisan

affect, partisan sorting, partisan ideology, religious ideology, but only limited increase in polarization of ideological affects. So while the ideological attitudes haven't shown big changes partisan affiliation has, which points to effects of the political climate more than large shifts in ideology among the population. In the same time period the American population has gotten older which also might contribute to some of the increases polarization.

Social media numbers were naturally not available going back to the 90's, so specific conclusions are not possible in that regard, but comparing with social media numbers of age groups, similar numbers to internet use show up regarding social media as for internet use; the younger generations are more active. So the findings of this study make it very hard to blame the brunt of political polarization on the internet and by extension social media. This is not to say, which the authors of the study also point out, that "the rise of digital technologies is not important. They may well account for some recent polarization, and whatever role they may have played in the past is likely to grow in coming years." (pp. 10-11), but it shows that the increase in political polarization can not only be explained by the internet and the subsequent effects on communication. This is an important point to bear in mind in the debate regarding digital media, so digital media such as social media are not blamed for effects that the research can not carry, and to guard against formulating too simplistic explanations which can turn into moral panics, and lead to more important explanations being overlooked.

Studies of Facebook from an external point of view

Having pointed that out, it is time to move on to the studies that research the filter bubble theory and the areas in relation to it. It complicates the debate regarding filter bubbles that the data necessary to study it is not publically available. It is possible to study actions on Facebook without gaining inside access, but what informs these actions, such as which content is presented and therefore the options the users are presented with in their news feed is very complicated, to truly test without inside access. Studies relating to the subject of group dynamics and news distribution on Facebook have therefore either relied on people allowing researchers access to their profile, or have been based on public data accessible from an external point a view. Such studies seem to support the concerns

regarding polarization happening online. One study researching polarization on Facebook and Youtube has shown that conflicting narratives led to users aggregating in homogenous groups, irrespective of online social network and the algorithm of content promotion. Once inside these groups, people behaved in similar fashion, regardless of whether the groups focus was science or conspiracy, the two subjects studied. Commenting patterns, particularly early interaction with content, showed observable trends in a user's activity and subsequent polarization that allowed them to be used as accurate predictors for the formation of echo-chambers (Bessi et al 2016). This study therefore supports that group formation along opinion lines happens online in similar fashion to offline, and supports the concerns of Sunstein (2001). This finding reports that the groupings are irrespective of algorithmic sorting, so here the main effects then must be, like online life before social media, be mainly due to the speed of online communication.

A second study done with similar external tools found that attention patterns are similar for science and conspiracy posts, meaning similar attention despite the different qualitative nature of the content. But even more interestingly that users who often interact with conspiracy information, are more prone to interact with intentionally false claims placed by the researchers (Mocanu et al, 2015). It is perhaps not so surprising that people who frequently interact with conspiracy news, and thus can be said to have exhibited interest in it, either to criticize or, probably more likely with the previous report's findings in mind, to support it, are likely to not to exhibit strong source critique in interacting with false claims. However, there is a reason to highlight this research in the context of news dissemination, because the findings showed that people who preferred what the researchers called "alternative news sources (...) [were] more susceptible to false information." (p. 1202) and if increasing numbers of people lose faith in the ability to be usefully informed by the news media, which is a possibility if trust in them is erodes due to their machinations to achieve engagement of social media with methods that undermine their seriousness, there is a danger of a larger group of people preferring alternative news sources, and thus becoming more susceptible to false information. This is not to say, that people will suddenly become less intelligent because they lose trust in traditional news organizations. However, regular citizens have less time and resources to check the validity

of claims themselves, which is why the news media has that responsibility. Therefore if trust erodes to a critical point where people don't follow traditional news media, with or without good reason, it will be more complicated for a citizen to be well informed, and thus less likely that it will be the case.

A third study conducted with from an external access point looked at opinion dynamics and actions in user networks as well as the effect of media behavior online. Regarding user interaction, they found that they users interacted both with other users and media according to the Bounded Confidence Model. In short, this model states that opinion influencing can only happen, if the two parties' opinions are within a certain range of each other. Regarding media two situations emerged. One was changing the message towards the value of that which the media profile with most followers were posting, in other words creating conformity of narrative to achieve interest. When this happened there was a smoothening of consensus transition. The other situation was looking to compete through polarization in posting quite different content and setting oneself aside in that way. The first situation was found to recede when numbers of media increased, and the second fragmented situation was found to prevent system-wide consensus. "Thus, it was found that plurality and competition within information sources lead to stable configurations where several and distant cultures coexist" (Quattrociocchi et al, 2014, p. 1). These findings do not neither support nor contradict a filter bubble thesis, but support that the situation is similar to traditional offline media, where groupings around occur towards opinion lines, and where a competitive environment creates a staple situation where different groups can exist.

A fourth study from an external vantage point looked at viral misinformation. It found that users engaged with content that fit the engagement patterns of their network, so that areas could be identified where certain types of content were more likely to spread. They found that the presence of hubs that produced content or influencers in the form of the most active users, were not prevalent factors in the spread of viral content. In line with Mocanu et al (2015), it is found that users who are polarized towards conspiracy, a community where unsubstantiated rumors often circulate, are a determiner for whether false information will go viral because they will share it (Anagnostopolous et al 2014). The findings of this report also support the forming of communities where specific opinions are

shared on Facebook.

A fifth and quite recent study looks at how news is consumed on Facebook. It finds that users generally focus on a limited set of pages. The lifetime of posts, meaning the time between a post is made and the last interaction with it, is found to be around 24 hours. Users vary much in how much they like or comment on articles, but all focus on a small number of pages. Users with higher levels of activity and longer lifetime of said activity on posts, corresponds to a lower number of sources. The people most active on facebook are those who consume the least amount of different news sources, and therefore those who can be expected to be the most polarized. The general picture is one of users polarized in terms of news consumption and with limited attention spans (Schmidt et al, 2017). While the limited attention span on Facebook can be an effect of the general attention span of people, it also corresponds well with the reality of the setup of the platform. As described earlier, new content is promoted in the news feed, and with very large amounts of information show up almost continually in the often updated news feed, which can be accessed instantly and repeatedly through the smartphone, there is strong competition for attention. The competition for attention is not only with other news items, but with content of a wide variety. In this light, it is not surprising that the attention span of a news consumer on Facebook is short.

So the takeaways from the studies from the external view of Facebook, which generally disregarded the influences of the platform's setup, but looked at what is happening there, are mainly that people gather in polarized groups. While neither content producing hubs nor highly active users are indicators of virality, people who are active in groups where unsubstantiated information is shared, are an indicator for virality of false information. People who interact with conspiracy are more likely to believe false information. The longer lifetime a post has in such groups, the higher is the likelihood that its comments turn negative and users have short attention spans. This does support the existence of filter bubbles on Facebook, but reasons for it are not researched. The reasons behind are a key aspect if something is to be done to combat the negative consequences of it.

The study with inside access

A study which looked at the key aspects of filter bubbles, where rare inside access was possible was made in 2015. Employees of Facebook produced a study on the subject of news exposure in the News Feed in 2015 which was published in the magazine *Science* (Bakshy et al, 2015a). The reason was seemingly to quell some of the filter bubble and echo chamber accusations. From the onset such a task would be hard to achieve through such means. The findings would have a hard time becoming influential due to the naturally problematic fact that the researchers were employed by the company, but just as importantly that the conclusions they produced were not testable by other researchers with the numbers not being publically available. The study did, however, produce some interesting findings, though the way they were presented was widely criticized. There are key findings that does not support the agenda of Facebook and since significant measures were taken to divert attention from them, they can be a taken as useful.

The study looked at people who had self-identified a political stance in their profile in the American binary spectrum of liberals or conservatives and how they interacted with news content. The content was divided along the spectrum of hard vs. soft, such as political news vs. sports, and along an ideological spectrum. The ideological spectrum was based on which users had shared the story most. If a story had been shared most by liberals it was labeled a liberal story and vice versa. The main finding reported was that individual choice matters more in limiting content that goes against a users political stance than the algorithmic sorting does. Algorithmic sorting lowers the risk of users seeing cross-cutting (ideologically opposing) content by 5 % for conservatives and 8 % for liberals, while the estimated risk of not clicking on cross-cutting content compared to consistent content was 17 % percent for conservatives and 6 % for liberals. Already there, an objection can be made about the conclusions drawn by the researchers: Individual choice matters more in limiting cross-cutting content for conservatives than algorithmic sorting, not for conservatives.

Among the several interesting secondary findings is that users only click on 7 % of what is define as hard news content. More expectedly, they report that a user's network matters in exposure to cross-cutting content. The median proportion of conservative friends for a liberal is 20 %, and for conservatives the same is 18 %. Though liberals

maintain friendships with a slightly higher percentage of ideologically opposed people their friends share less cross-cutting content coming in at 24 % compared to 35 % for conservatives' friends. Another minor finding reported, mainly because the report to have adjusted for it is that an items placement in the News Feed matters greatly in its success in terms of clicks. But how significant this factor is, is underplayed in the report itself, but evident in the additional material which is not included in the report document.

There are a number of points to be critical of in this study, which a good number of people also expressed immediately after the study's publication. A general point of criticism is that the study with such interesting contents is only 4 pages, and a lot of the interesting data is only presented in another supporting article (Bakshy et al, 2015b). That seems disingenuous and does not serve the credibility for the researchers, which was already in question due to their employment at Facebook. Besides that, looking more detailed at the content of the study, the first point worthy of attention, the sampling, is also a something which is presented in a somewhat misleading fashion. The researchers describe it as a "large, comprehensive data set from Facebook" (Bakshy et al, 2015a, p. 1130), but in the article itself very few details are presented. Only the number of users studied which are 10 million, and the week in which they were studied. It is necessary to look at the supplementary material, which is problematic for such as important issue as sampling. The criteria were: User who were 18 or older, had logged in min 4 out of 7 days pr. week, had interacted with at least one link shared classified as hard news within the week the data is gathered, and lastly, and most importantly, those who self-reported their ideological affiliation. Only 9 % of the adult population self-reports in this manner, and 46 % of them did not provide an answer that could be meaningfully categorized on the scale (Bakshy et al 2015b, p. 2). That means the study is limited to 4 % of the population, and a group who is very specific in a certain kind of political behavior in the form of the self-reporting.

Though the sample contains 10 million users it can not be said to be representative of the 200 million American Facebook users, since the users were neither randomly nor representatively selected. The sampling is done based on the very thing it is trying to study which is political content. That is problematic (Hargittai, 2015). The group sampled can within reason be expected to behave differently than the general public, likely more

partisan (Sandvig, 2015, Tufekci, 2015, Pariser, 2015a). It should be noted, however, that the research paper has been edited between its initial online publication on 7 May 2015 to the publication in the journal on 5 June, so the concluding section that Sandvig (2015) quotes and criticizes has been changed in tone from: "Finally, we conclusively establish that on average in the context of Facebook, individual choice more than algorithms limit exposure to attitude-challenging content." (Bakshy et al, 2015c) to the less definite and more fitting: "Within the population under study here, individual choice more than algorithms limit exposure to attitude-challenging content in the context of Facebook" (Bakshy et al, 2015a, p. 1131) It certainly meets some of the criticism regarding the conclusions that can be drawn, but the issues regarding the sampling are still worth noting as important for what the study can be used for.

The second point of interest, which might easily be overlooked, is the ideological alignment assessment. The ideology of the news items is assessed through looking at which articles are shared the most by either of the two groups of users with self-reported ideology, not from any content analysis. As Pariser (2015a) describes it "If conservatives like unicorns and there's content that passes the "hard news" filter about unicorns, that'll show up as conservative-aligned—even though the state of unicorn discourse in America is not partisan". This presents a precision problem in studying ideologically diverse news as the title of the research paper claims to do. The fact that certain stories are shared more by a group that self-reports a political stance, does not necessarily give the content of them a certain ideological bent. The researchers validate this approach in the additional materials by comparing it to the findings on regarding quantifying ideology in media content from three influential research papers from Budak et al, Groseclose & Milyo, Gentzkow & Shapiro respectively. (2015b, pp. 4-6, 19) Bakshy et al describe that their categorization lines up well with previous literature on the subject. That is particularly true for Budak et al, where the correlation is strong with 0.91. Regarding Gentzkow & Shapiro it is the decent 0.51, but regarding Groseclose & Milyo it is very far off and Bakshy et al's findings are almost closer to an opposing correlation with -0.47 (p. 4-6). No comment is offered to explain this discrepancy which is problematic. It points to a methodical problem with interpreting shares as support similar to the one I described regarding the Silverman (2016) on p. 20 of this report. Shares can not be taken uncritically as an expression of

support.

A better approach would have been one based on language. The highest precision would be to have human assessment the articles manually, but that would naturally take very long time working with data sets of this size, and such detail probably wouldn't be necessary. But an approach where certain key words or phrases are assessed as indicative of an ideology, which are then analyzed digitally could be very useful. The researchers use such an approach in assessing hard vs. soft news the form of "bootstrapping" approach from Natural Language Processing where content is analyzed based on keywords. Such an approach would have been very useful in ideological alignment measuring (Bakshy et al, 2015b, pp. 3-4). That would allow for an analysis on the news articles shared based on their content and not their provider which would be more precise.

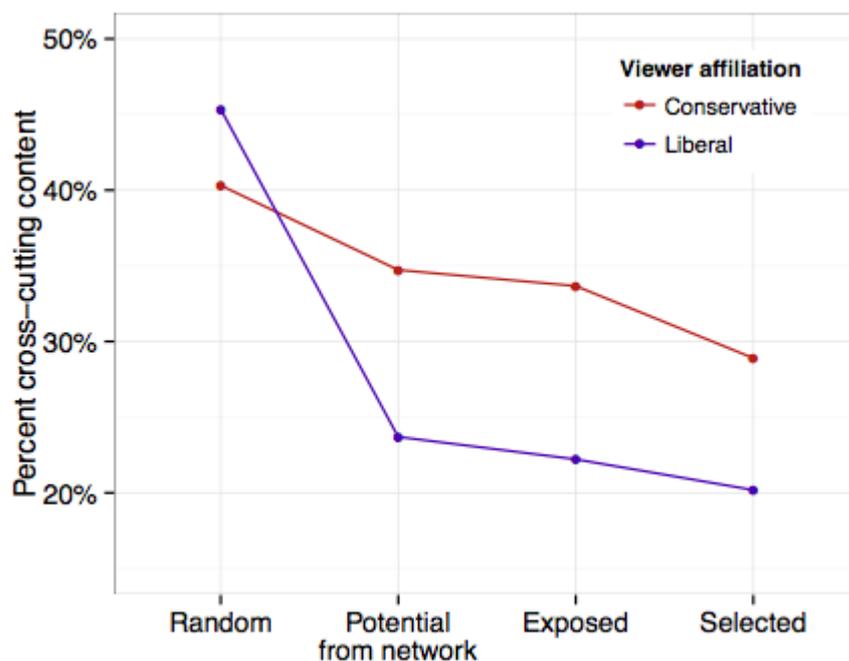
The third noteworthy point, which also is one of criticism, concerns itself with the main finding of the study. Here a comparison is made between the algorithmic sorting of content to people's own preferences in limiting exposure to cross-cutting content. It's an apples to oranges of two phenomena that can't be meaningfully compared. One is the algorithmic sorting of EdgeRank which is based on the criteria of Facebook, which has been a main point of criticism of the platform, while the other is the well established fact of confirmation bias, and even more importantly, they are not two separately occurring phenomena in the context of Facebook (Tufekci, 2015). They happen in sequence, because users are choosing among content after it been sorted for them, not instead of it. A user choosing something out of preference is vastly different than something being hidden due to algorithmic sorting. Sandvig (2015), Professor at the University of Michigan, gives this comparison:

"The tobacco industry might once have funded a study that says that smoking is less dangerous than coal mining, but here we have a study about coal miners smoking. Probably while they are in the coal mine. What I mean to say is that there is no scenario in which "user choices" vs. "the algorithm" can be traded off, because they happen together" (sxn. "Facebook: It's not our fault")

In relation to what the report is trying to research confirmation bias is only a minor point.

It is a well-established finding of psychological literature that was not necessary to study in the context of Facebook, while Facebook's algorithmic sorting was something that had only been researched to a limited degree, and certainly not with valuable inside access to data, so aside from the fact that the two can not be compared, the finding is less interesting, and a comparison seems like a cop-out.

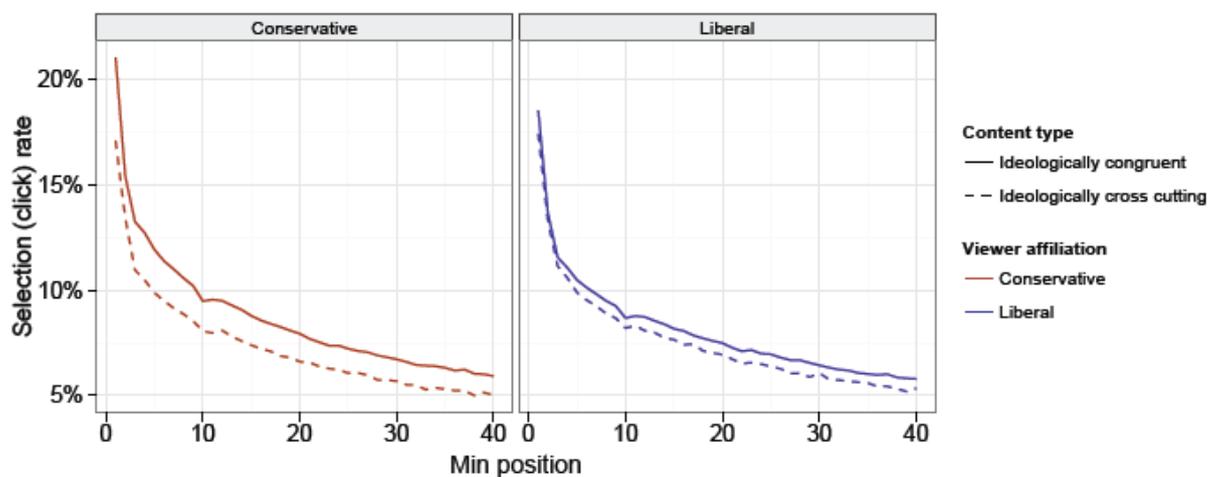
The interesting finding is that EdgeRank does limit exposure to cross-cutting content, and it limits it 5% for conservatives and 8% for liberals (Baskhy et al, 2015a, p. 1131). This should be the main finding of the study, since it is one of the main features, if not the main feature, relevant to exposure of news content on Facebook. An overview of the limiting factors is provided in this chart.



As discussed, network matters the most in limiting cross-cutting content, however, the algorithmic sorting seen in the "Exposed" category, is also significant. Particularly because it can not be expected to be a static effect, since the continued promotion of content can serve to continually limit other content, and once it is not seen, there is no possibility of engaging with it to bring it back aside from manually going to specific Facebook pages and liking posts. Ideally, the limiting factor should have been highlighted better to serve users in being informed about the workings of the Facebook News Feed, how it is sorted, and how the actions they take on the platform affect this. Research from the same year

indicated that this was an area where people were consistently underinformed, rarely fully understanding the extent and reasoning behind the algorithmic sorting, but where they gained higher satisfaction from being informed due to a greater feeling of autonomy (Elashmi et al 2015).

The last point that I will highlight from this study, is also one that is only presented in the supplementary article, but is nonetheless very important. Tufekci (2015) calls it the most important finding of the study. It shows the relationship between click rate and placement in the news feed, where there is a steep decline after the first few positions. The first position is clicked at a rate of a little less than 21 % for conservatives and about 18 % for liberals. By the 5th post that rate is down to about 12 % for the conservatives and about 10,5 % percent for liberals. At the 10th position about 9,5 and 8 respectively, at 20th about 7,5 for both.



(a)

An items placement is immensely important in the news feed for a hard news item's success, and it is not something a page such as a news distributor has any specific power over. It is possible to buy promotion in the news feed for a public page, but not a specific placement in the newsfeed. Particularly taken together with another finding reported that users only clicked on 7 % of the hard news content available in their feed (Bakshy et al, 2015a, p. 1131), the importance of placement underlines the importance of a post

containing hard news to be engaging to have large chances of ending up in one of those important spots. It illustrates well the kind of pressure that is put on news organizations who supply serious content. News media are deeply influenced by how EdgeRank functions in a news feed where they compete with a lot of other content, and seemingly is losing the battle for attention. But due the popularity of the platform, and the amount of collective attention given to it, the news organizations essentially have no choice of whether to have a presence there as a main focus.

Summarizing the findings of this study, even with its issues, it shows that a limiting of ideologically opposed content takes place. This supports the filter bubble theory, where the existence of it is informed both by ones network and the limiting factor of the algorithmic sorting. Two other interesting findings were also particularly noteworthy. It was shown that only 7 % of hard news content is clicked on, which suggests that news organizations are losing the battle with other content on the News Feed, and placement was shown to be key as there was a steep decline in click-rate as moving down the line from the first visible posts of the news feed.

Discussion of consequences of the News Feed setup

This section will discuss the consequences of the properties of the News Feed as a medium for news consumption. This will be done from the perspective of the environment it creates, but also how the news media and politicians to act within it and what outlook it ultimately leaves for the citizen to use it as an information tool. An attempt will be made to asses whether Facebook and the properties of the medium is positive, negative or neutral in the communication that relates itself to achieving and keeping and informed citizenship. After this possible solutions to the issues that Facebook's dominance and features create in the democratic context of being informed, will be discussed.

The environment of the News Feed

The key aspect of Facebook as a medium for news consumption is the News Feed. It is defined by speed, network, and a large amount of information in a small visual space sorted by how much it engages people within the metrics defined by the platform to analyze that. The placement of an item matters greatly for the success of it. If the

characteristics of the News Feed should be summed up in one word, it would be competition. In concert with the technological advances of the internet and the smartphone Facebook allows for direct, instant access to a large community of information and social actions on a wide number of areas.

As shown in the visual analysis, a lot of content is competing within the News Feed, and that is the gift and the curse of it. On one hand it allows for users to reach a lot of other users quickly, but on the other hand the way the medium allows users to reach other users is a relatively small and compressed with information. It is a smaller part of a space that makes up a smaller part of an already pretty small space in the form of a smart-phone screen in a functional setup where the user can move on from the post with a flick of a finger, and has incentive to do so because they know there is more, perhaps more interesting content available. Adding to this, is the fact that the portability of the smartphone and the almost omnipresent ability to access the internet, which means that aside from occupied a small space on the screen, and competing with other content within the platform, content on Facebook is also competing with off-line situations, as well as other apps on the smartphone, which is also available by few movements of the finger, and might also send a notification intruding on the users attention. The content therefore needs to grab the attention of the user and draw them in instantly, particularly if it wants to facilitate information that takes more than a few seconds to process. And due to the nature of the News Feed which is updated every time the platform is accessed, content encountered is not returned to unless the user has made a comment on it which is answered. Therefore if a post is not acted upon directly or saved for to access at another time, it is very unlikely that it will ever be seen again.

Adding to the strong competitive nature of the News Feed is the governing metric of engagement measured in comments, shares, likes and clicks. It can also be viewed both from the side of a gift and a curse. On one hand, a post can reach a large number of people, even people that have not explicitly expressed interest in content produced by the profile by adding it as a friend, or more importantly by liking the public page. This is because they are shown content that their friends engage with in the likelihood that it would interest the user too. A public page will generally have a stronger incentive to reach a large number of people going beyond their original following because they have a

product, service or message they want to get out, and want as many as possible to see it, while a user with a personal profile will usually be content to reach their own friend group. On the other hand, it can also be viewed as a curse, in that a post that is not engaging will fail to reach even the full following that profile has, people who actually have expressed an explicit interest in following content from that profile. In that light, making content that is at least somewhat engaging can be viewed as an entrance fee for profiles to reach a wide audience. Profiles, particularly the public profiles of brands or businesses, pay the entrance fee for reaching an audience by making content that engages and thus is found useful by users. That makes sure that content is created that is found useful by users, and as such keeps the interest levels for Facebook usage high. So while Facebook does not charge a fee for the distribution they provide, users who want to be successful in reaching large audiences have boost the popularity of Facebook's platform, popularity which the company in turn into data which they monetize through advertisers.

Public profiles that consistently create unengaging content will find themselves being marginalized by having the reach of their posts stay limited. They will have to learn to make engaging content, or they will end up on the fringes of people's news feed only showing up sparingly. The same can be said to be the case for private users. If they don't make content that other users engage with, their posts will reach less people. The difference is though, that private users are not provided with as much feedback as public profiles do about how their posts are performing. A key portion of feedback for the post of a public profile is its reach. A private profile is not informed about how many people have seen their post, so it is possible to be marginalized without knowing it. However, it can be expected that it is easier for private profiles to make engaging posts, as their network will react to their posts in a different light than a public profile of a business and a brand. There is normally a personal relationship between friends, which make communication and likes more likely for less elaborate posts. There is, however, most likely still a conforming effect of the engagement criteria that Facebook structures by, so posts that are deemed more successful in the form of positive engagement such as likes are likely to be repeated in form. So to sum up, the Facebook News Feed is a highly competitive, but ephemeral environment that pushes content towards being processable quickly, in this case visual posts trump text in processing a lot of information quickly, or content that is able to grab

the users attention and maintain it on a small screen and with the possibility of other things disturbing, both in the news feed itself, but also in the direct vicinity of the person.

The visual setup contributes to a short attention span which limits the ability of serious news items to reach the user as such content often needs a higher degree of focus. The visual setup together with EdgeRank that promotes content that is engaged with by users creates a favorable environment for easily processed items to spread. Not surprisingly, serious news content has a hard time competing with other content and only 7 % of items clicked are what is categorized as "hard news". This nudges behavior on the platform in the direction of things that can thrive in this environment. This is the case for regular users who have been shown to adjust activity towards what gives likes and engagement on the platform for the positive social feedback it provides, but it is particularly the case for actors who have an agenda in reaching a large amount of people.

News organizations and News Consumption in the News Feed

For the news organizations, the gift part seems to have been more enticing than the curse. However, you can also view it as a reluctant move of necessity to go where the audience was. Due to the reality of internet based business, where consumers aggregate around the supplier that is deemed best, and where a snow-ball effect attracts more users and advertisers which in turn reinforces the tendency and rolls on towards monopoly, the popular service that Facebook provided, gained even more traction and became impossible to overlook. In a news media that has had its struggles in recent years it makes Facebook even harder to overlook. This has particularly been the case for the newspapers who have had issues roughly since the ability to access the World Wide Web became commonplace. Recently, television has had a receding viewership. They are still the dominant news source of America, particularly due to the dedication of the older generations. But the younger generations increasingly disavow television and replace it with digital solutions, and that reality seems like a window into the perhaps not so distant future. The competitive environment of Facebook's News Feed is therefore as much a necessity to stay relevant in a new media landscape as it is an addition to their other distribution channels.

In one way, there is little difference between a competitive environment like the News Feed and that which exists outside of Facebook and existed previous to social media.

If a news organization produces content that people like they will patronize the company by accessing their content which then makes money for them through advertising. But that is not the only relevant criteria in the marketplace of the Facebook News Feed. As already touched upon, a post with content that can be processed quickly, or gain attention quickly, has an advantage in getting its message across in the News Feed, and content that elicits a reaction is necessary to spread and the more reactions the better. News content is therefore, like all content in the News Feed, pushed towards fitting within those criteria. Engagement matters and when such content is rewarded, organizations adjust to this and produce content that look to create comments and shares. A simple example of content to create comments in regards to political news content is a statement followed by a question like "what do you think?". The news value of such an article is questionable, yet very useful for a news organizations Facebook profile to gain a higher ranking in the News Feed of their followers if it succeeds in getting people to comment. Aside from such simple tactics, making articles with content that is controversial is also an option to make it comments more likely. Similar to controversial, and probably by extension, polarizing content is also relevant in making content that people are likely to share. But all political news that is relevant for a citizen is not necessarily of controversial nature or of a sort that will necessarily elicit engagement from users. Therefore, news distribution on Facebook operates under other conditions than offline news, or at least under the same condition but in a highly amplified state. They have to adapt or miss out on the possible wide reach they can achieve. Hard news items with more complicated content have always had difficult conditions in competing for the public's attention in a situation where the many of a person's waking hours are spent working, and where leisure is valued. However, the way in which such content is distributed to citizens also plays a role in how they can be viewed and received.

The medium is a key component. Though distractions are possible in every scenario of news consumption, some media situations facilitate longer, deeper attention spans. An overarching theme is the immediate availability of other options and switching activities. The option of switching is readily available on the Facebook platform and in the News Feed. Not only is there always another post preceding and following a specific news post, there is also the possibility of receiving a notification on the platform or in one of the many

other apps available on a smartphone. Reading a newspaper is a different kind of activity. It is relatively closed off. Particularly with the format of the older newspapers that could cover most of the upper body of a person, and encompass the full vision of a person and thus limit visual distractions. Though there is still the requirement of generating interest in the reader for them to read an article, there are few things distracting them in making the choice of whether to read. A television broadcast also offers less distraction than accessing the News Feed on a smartphone. While the existence of many channels and a remote offers the easy possibility of switching to another channel, distractions are not inherent in accessing a TV broadcast as it is on a smartphone and in the News Feed. News distribution is therefore offered worse conditions by the Facebook smartphone platform for the more complicated items to reach the citizen. Generally the news articles that are defined as the important parts of being an informed citizen in a democratic society contain a decent amount of complexity. Content that elicits a quick reaction is generally not an inherent characteristic of hard news items, often about politics, unless it is regarding a scandal or a major event that is unfolding. While it is not necessarily always the case, hard news items often require an establishment of context to be understood fully, and if the context is not understood fully, a simplified version of the content is accessed, which can lead to problems of understanding and heightens the chance of the problematic misinformation. So adding to the problems of getting users to access one's content from the view of a news organization, is the democratic problem of a limited, and possibly wrong, understanding of item that can come from only reading a headline. So the highly competitive environment for information that the News Feed is, and the way it facilitates a short attention span, is a not an ideal environment for accessing the relatively hard news that a citizen needs to be informed about the society in which they act.

In the light the properties of the News Feed, it is perhaps not too surprising that the tactics of bait-articles have risen. Not only click-bait articles, which also existed before Facebook to boost revenue by getting people to a site with sensationalist headlines, but also like-bait, share-bait and comment-bait to boost a profile's standing with users in EdgeRank, and gain page views that generate advertising revenue. It is not a new feature that less serious, lighter content is used to pay for more serious content. That has been a long standing tactic of the news media where a sports section was used to boost the sales

and thus advertising money of a newspaper, or a talk show with light content generated the advertising money for a TV station to run a their news department. However, the difference is that while some less serious posts can boost the standing of a news organizations Facebook profile and allow future posts a higher chance to show up in their followers' feeds, there is also a requirement of a post in itself being engaging for it too reach people. So while a profile with good EdgeRank standing might initially have a higher potential of reaching users, that potential will not be fulfilled if the post itself does not garner engagement. Also, differently from sections of a newspaper or different programs appearing on a channel, is, that while there of course still is some brand association with different sections of a news paper, and different programs on the channel, they are to a higher degree separate entities than posts from the same of public Facebook profile. A Facebook user will see the same profile picture and name for each post, and if a serious newspaper engages in too much baiting, they run the risk that the user will unfollow them, vastly diminishing their chances of reaching that user. Facebook has also recently unveiled measures to combat click-bait, so while they seem to focus on the more blatant kind first, you run the risk of having your reach limited by Facebook if you engage in baiting strategies to help your post gain the valuable engagement.

An aspect of the quicker possibility of news spreading with the criteria of user engagement as the magnifier, and the competition that follows from these criteria adds to the incentive of being first is the "jump to conclusions effect" (Lee 2014, pp. 170-184). This can be the case for both official news organizations, and regular people on social media. Examples of this include news organizations like CNN, Fox News, Buzz Feed and Gawker identifying a wrong person as a suspect in the Sandy Hook shooting of 2012, and Reddit users pursuing the wrong men after Boston Marathon bombing of 2013, as well as the New York Post printing the wrong men their front-page and subsequently being sued for it (ibid, 174, Sacchetti, 2013). A more recent example is Pizzagate, where a rumor spread on social media led a man to enter a restaurant thinking to stop a child pedophile ring and shot several shots with an automatic rifle (Fisher et al, 2016). New organizations trying to report on important issues in a news climate that values speed, can make mistakes. Citizens can then amplify these mistakes by spreading false information, leading some frustrated citizens to take vigilante measures. Though there other interesting aspects of the Pizzagate

case as well, which lend themselves as much to misinformation as jumping to conclusions, it can be included with the two other examples which included news organizations as examples of times where information spread a little too quickly. Such spreading of information is hard to police on social media, but is a point that can be used to speak in favor of Facebook and other social media taking responsibility for the consequences of easy spreading of information on their platform. Such examples show that news organizations are pressured by the speed of social media with Facebook in the lead.

The news media are therefore as much bound by the curse of the news feed as the gift. Along with being pressured by the speed of the information circulation, they have to value the engagement criteria that the News Feed values, but can't exploit it too much and cross the line of baiting. This is not to suggest that anyone should feel sorry for news organizations that they are limited in how much baiting they can do. It is to illustrate how much they are acting under the criteria set forth by Facebook, and how they seem pretty powerless actors within that immensely important platform. Facebook's criteria, understandably rule the platform, but those criteria are not necessarily congruent with the criteria of useful news coverage in a democratic society. While a profile is rewarded by EdgeRank when a user clicks on an item, which as demonstrated has its challenges in getting seen in the first place, the reward is the least valuable compared to comments, shares and likes on the post. Facebook are not too interested in directing users away from their platform, which is both seen in the criteria of EdgeRank but also by the fact that they have tried to enlist news organizations to publish their articles inside the platform, as well as enlisting organizations, brands or celebrities by offering to pay them for producing content through the "live" function. Online life has increasingly become Facebook's world and the news organizations just live in it.

Politicians in the News Feed

In regards to politicians communicating directly with the citizens there are also identifiable issues for citizen to stay informed by that. Politicians have a clear agenda with their communication. Leading up to an election the goal naturally is to garner the most votes. In non-election times there are goals of tactical positioning to gain the advantage of public support and use that for leverage, to depict opponents in a bad light, to try to control the

direction or premise of a debate, or to divert attention away from a bad situation for the politician or their party. Tactical statements at opportune times are of course not something new specific to the Facebook era, but before it was necessary to go through the filter of the news media to get a statement out to a wide audience. And while the filter of that gatekeeper of the traditional American news media certainly did not contain problems, and likely still does, particularly when its susceptible to advertising interests and government cooperation (Herman & Chomsky, 1988), at least there was some kind of process that a politician had to go through. There was a chance they wouldn't get to make controversial, unfiltered statements at a time of their choosing without being questioned regarding their motives.

This is now possible on social media, and gives the politicians increased power over their message and when to release. This puts pressure on news organizations to keep up and stay relevant, and it is not uncommon to see them report on things that were published on social media by politicians. They are not without influence, but they are left to comment on a message after it has been posted on social media, where it possibly already has achieved its purpose, or where a news organization commenting on the statement only furthers the agenda, even if the content of the statement is criticized. Therefore politicians ability to have presence in the News Feed of users puts pressure on citizens to be able to decipher the tactical, angled communication of politicians when they get it directly from the source, and not be duped into reacting in the expected way, or to pay attention to the statement, if other more important matters are going on. Politicians can use the properties of the news feed tactically just like other organizations with public profiles to gain prominence on social media, and produce controversial content at opportune moments that is likely to create comments, shares or likes and can serve their agenda. And like some organizations, but unlike regular citizens, politicians, more often than not, have staff who are experts in communication, who can help them angle their messages successfully within the communicative criteria that are important on Facebook.

Informing the citizen in the News Feed

The question is then, where this situation leaves citizens' ability to be well informed in a situation where Facebook is, or soon will become, a dominant media for accessing news. This is not the case yet, but the numbers show that it is already a significant source and there is a consistent rise in the number of people who use Facebook as a news source and with the growth of Facebook coupled with the diminishing of other news distributive media, it doesn't seem like an unlikely future. With the speed added to technology and the distribution of information over the last decade it has become increasingly important for a democratic citizen to be aware of how they receive their information. A person who lets their ways of acquisition of news somewhat passively lets it follow the changes in technology and media will be floating on the waves of the criteria of the medium. While misinformation was always a risk of mass media, and you can argue to which degree citizens were fully informed by TV, radio and newspapers, today that risk has been amplified and changed. The cost and speed of distributing information has fallen dramatically, leading to more information being readily, there are fewer gatekeepers, or perhaps more overlooked gatekeepers who set the criteria for what gets through to people. There is great potential in the higher amount of information that is available online, but there is also the risk that people consume vastly different politically aligned information if they aren't aware of how the information on Facebook is filtered to reach them.

In the same vane the problem with engaging content being promoted is that there is a risk that it will be the more polarizing content that gets promoted because that is what causes people to react, because news outlets are nudged towards publishing content that creates engagement on Facebook. So it can lead to polarizing in the form of information silos where very different views of society and political life rise through viewing the world through very different lenses, and news on Facebook has the risk of becoming degraded in quality due to engagement being the driving criterion for success. After these issues of filtering, there is also the discussion of people's ability to assess the truth of information online and on social media where they can practically be bombarded with information. As the study from Stanford shows, there seems to be issues in the future about young people applying good source critique online and on social media. That will be a key point of emphasis for the education system going forward to not expect that young people are

necessarily critical online news consumers just because they are frequently online.

Facebook is a different media situation, which is more active than TV, quicker and more participatory, which means that it is not as simple to sit back and outsource the source criticism to a news agency, because even though such agencies also have a presence on the medium, it is not only their criteria for news that are the controlling factor of what is brought to the consumer. So in summation, the critical points for a news consumer on Facebook is to know is that it's a visually packed environment with a lot of information that invites a short attention span where they will see a higher degree of information they are likely to agree with added on top of the selection processes they themselves have used in choosing which news profiles to follow and friends to accept and engage with. The content they see is ordered after engagement, which not necessarily brings the best quality of news or the most relevant, and lastly with the easy possibility of content creation and distribution, people need to be educated in what constitutes clues to trustworthy sources. These factors have the potential to add negatively to a citizen's ability to be informed in a situation where Facebook is a significant news source, if they only have a very limited general knowledge and awareness of them.

So to wrap up the discussion about the effects of Facebook's platform setup on citizens' information levels is to assess whether it is a threat to democracy. While threat is probably too strong a wording, there are more identifiable negative aspects than positive. A platform that engages large parts of populations several times daily, and where information can be shared within seconds has a large potential for spreading information important for a citizen in a democracy. However, it as been shown that the same functions of group dynamics happen on Facebook as in online life, where people voluntarily gather in groups along polarized opinion lines. And while group sorting and deliberation is a key function of democratic society for different interests assert their rights, the speed and ease to which it happens on Facebook, and the way people in polarized groups are shown to have a harder time discussing with those of diverging opinions, quicker turning to negative comments, seems to speak against it as a positive effect. The News Feed, the key aspect of this report and likely the most important part of Facebook is not a positive factor either, particularly when so many users have little awareness of how it functions. The News feed is a visual environment defined by competition and ephemerality where engaging content

is promoted and gives the user more of what they previously have engaged with in an attempt to try to show them more of what they like. That attempt can be said to have been quite successful judging from the continued user growth the company has had, but the sorting criteria as well as the short attention span that is encouraged by the visual setup are often incongruent with important information in a democratic society. Some important information can not be digested visually in a few seconds, which is the processing of information that is promoted in the Facebook News Feed.

Furthermore, the Facebook platform has also given politicians another place to distribute their message easily to a large part of the public. This opportunity is of course also afforded ordinary citizens as well as grass roots organizations with lesser funding. The question is who gains most from this possibility. High level politicians have skilled communications workers backing them, which can take advantage of the platforms setup better than smaller politicians, regular citizens or organizations with small funding. Therefore it seems like it reinforces the existing power structures where money matters in communicating a message effectively. When it comes to certain issues however that fit well with the platforms setup, such as things that can be shown visually like police brutality, citizens can take advantage. So it is not to say, that there are no positive aspects afforded by the setup of the Facebook platform, however as a large part of politics take place in writing or in visually unengaging situations, that a key part of democratic information, does not have good conditions for competing on Facebook. Therefore the assessment is that there are more negative or distracting than positive effects of Facebook's platform setup on democracy.

Possible solutions to democratic issues

The existence of Facebook and its popularity seems unlikely to change going forward, and therefore there is a task ahead of citizens staying informed. In this regard there are several measures that can be taken to combat the negative influences of Facebook's setup. The actors in this regard are of course Facebook themselves the citizens, news organizations and government.

By the Company

Facebook naturally has the potential to be the most effective actor, but it does not have the strongest incentives unless it threatens the company. There are several measures they can take to help the citizenry to be informed are probably those that can be most immediately effectful. They have, as mentioned, already taken measures to combat click-bait and fake news. With the vast amounts of data they have on actions on their platform, there are many tweaks they could make to promote serious news content. News providers consistently shown to be trustworthy news providers could be promoted in the algorithm, the EdgeRank sorting could be suspended or limited for political issues, so the ranking doesn't further promote confirmation bias by only favoring engagement on political issues.

The issue facing such measures is talks of censorship and editorializing, and whether the Facebook Company should be the "arbiters of truth". It is understandable that such issues make people uneasy. With the amount of information Facebook processes and shows users every day, they have immense power. Zuckerberg has been adamant that goal of the company is to give everyone a voice (2016a). The company views themselves as a neutral platform for people to use, but were faced with the platform being used for what was viewed by many as problematic goals during the Presidential campaign. It illustrates the two chairs that Zuckerberg and the company sits between. On one hand they describe their effectiveness for reaching and influencing large groups of people to advertisers, but on the other hand, they want to be viewed as an unbiased, friendly platform where people interact according to their own premises and preferences, and generally better the world. The question is, whether it is possible to both be a platform that connects a wide number of people, but take no responsibility for what occurs on there. The issue was raised regarding with fake news, and can similarly be raised when politicians are

observable spreading false agendas. The question is perhaps somewhat murky regarding information dissemination, because often there is a problem between discerning the truth. But the question facing Facebook regarding their responsibility in information dissemination becomes more obvious when raised regarding circulation of revenge porn on the platform, murder or rape and a wide variety of other crimes being shown through the live function, use of the platform to recruit people to terrorist causes (Schaper, 2017, Solon, 2017, Overly, 2017).

It seems to me that the line can no longer be skirted, and that an overall commitment must be made to one of two directions. The first is to commit to the view of a neutral platform, which does not interfere with its users' behavior besides ranking content based on engagement and favoring content that successfully engage and allow the users judgments to rule as long as the content is not illegal of course. This would make it kind of an extension of the World Wide Web as a whole, or at least the original idea of it, as a free space for distributing information. In this scenario the company has to live with the fallout from controversial content spreading on the platform and refer complaints to the fact that the platform is equal for all, and if some have issue with some content, they can take measures to spread opposing content. The second option is to admit responsibility as a media platform and take measures to limit some form of content that it deems problematic, and admit that it does it. Both directions have its issues. The first would mean surrendering a large part of control over their service, something a company of that size will never do. It would also be likely to result in a large PR problem due to being associated with controversial content and could lead both advertisers and users to avoid the platform, which would mean the company would lose revenue. The second option faces criticisms of censorship and limiting free speech. It could raise questions regarding the criteria for selection and most importantly, it would likely make the users more aware of the large power that the company wields as the worlds largest information distributor, which is something that the company does not like to remind people.

The company has committed to the second strategy, but not as fully due tot the reasons described. This is visible in the measures that have been taken to limit certain kinds of behavior such as the more harmless click-bait, the more potentially problematic fake news, and starting measures to identify and combat terrorist recruitment through the

platform. The issue the company faces is, that they have a size where such things are not processable by humans, and they will have to develop algorithmic measures to serve the purpose, which takes time, and could have unforeseen consequences.

In regards to the debate of what Facebook can do it is important keep in mind that content is already filtered on the platform. It is not a question of adding measures to a neutral platform. The algorithms which control the information distribution are made by humans and criteria set up by humans, so there is already filtering on the basis of some chosen parameters, it is just more unseen. The important thing is not so much the curating or limiting of information which already happens, because as shown the company has a responsibility to do it if they do not the consequences of it. The important thing is that the criteria are shown. This leads to the most important measure that Facebook could take: offering transparency. On Instagram in the 'search' section pictures show up that an algorithmic sorting has assessed might be interesting to the user. Under the pictures there is a short description of why the picture shows up like "based on people you follow", "based on pictures you like". While the algorithm on Facebook takes more factors into account, similar information, perhaps a little more detailed, could be made available in the News Feed. Short of allowing people to choose the parameters of their own news feed in the settings, which some have called for, but is just about as difficult as it is unlikely, allowing the user to see information about why they are shown a specific post, would give greater transparency and added autonomy in trying to change it if they know the basic function on which Facebook assess which content is shown to a user in the news feed.

As Facebook's actions so far in its existence has shown, they chiefly act upon the interest of their own company in improving their platform towards gaining more users and attention, and upholding their own image. The second part of that statement however, is where they can be influenced as their business model is built model is highly dependant on a positive public image. If they face significant public pressure either by disgruntled users, but even more from large political actors, they have shown that they will take action. Therefore it is equally, if not more, relevant to look at measures that citizens and governments can take towards correcting the negative democratic influences of the platform.

By citizens

For citizens I would argue that a general thread is to become more aware of how you consume news and make active choices. As has already been discussed, the visual environment and the sorting features create problems for which content is promoted in the News Feed, however, it does not mean that it's necessarily not to consume news at all on Facebook. The important thing is that people become aware of how Facebook and the News Feed functions with promoting engaging content, which leads to limiting of ideologically opposed content, as well as the human tendencies to willfully gather in groups with likeminded people. If not, Facebook is a problematic to use as the sole or main source of news. If one is aware that of this reality it can usefully play a part in news consumption as long as people are aware of the circumstances they the news is received under and not necessarily take it as the full picture. In such a situation the correct context is applied to the news seen, the content encountered can serve to lead to exploring the subject further.

It is possible to take measures not to engage with political content leading to a filter bubble in that area, or perhaps even taking counter measures by engaging with content they do not agree with to try to get fuller news picture in their feed. However, such measures would somewhat imprecise, when you don't know much about the criteria for filtering, but if one is weary of suspecting not getting the full picture, it is probably better not to use the platform as a new source at all, besides what can't be controlled of course in the form of shared content from friends. An obvious solution to a more autonomous process of news consumption towards is to patronize serious news organizations such as newspapers directly instead of only accessing them through the prism of Facebook, if not by subscribing then by going to their websites or apps if they have such independently to boost their advertising revenue. The news consumer can get the news that the serious news organization finds relevant, not only what their friends find relevant, what other people engage with, or the news that are slanted towards generating engagement. It would be giving up some convenience, which is a strength of Facebook's when they have so many things gathered in one place, but it would likely supply better coverage on more relevant criteria. It will also give some of the lost power back to the news organizations to gain a steady following. While the power of Facebook is not likely going to lessen, their platform which caters to a large part of human life and interaction is still going to hold

massive importance, it can give the news organizations the chance to have to act less within the terms set by Facebook's platform.

By news organizations

The measures that news organizations can take to help fulfill the role of informing the citizenship in a media reality where Facebook is a dominant player is complicated. As shown, they are pressured by the attention that Facebook attracts to be a player there. A start would be not to accept the premise of Facebook's sorting criteria blindly and change or slant the news differently to gain more engagement and reach on the platform. That will likely erode their trust, and backfire in the long run. A goal should be to divert and circumvent traffic from Facebook to their own news sites or apps, in ways that are equally convenient for the consumer, and possibly try to brand Facebook as a place where real news have bad conditions. They have gotten opportunities with the fake news debate and the filter bubble debate.

One possible measure that has risen, which doesn't challenge Facebook's dominant status for distribution, but tries to challenge the spread of fake news and misinformation, is the rise of fact checking organizations. There are some issues with the concept, because people tend to react on emotional clues rather than logic clues (Kolbert, 2017), and there is even research that suggests repeated warnings of fails claims can lead to people misremembering the claims as true (Skurnik et al, 2005). However, newer studies the phenomenon specifically in an American context show, that while fact-checking is generally ineffective on the general public on ineffective issues it can be effective if used to target political elites. This is because it increases the reputational cost or risk of spreading misinformation. So while the getting the facts themselves correct might not matter too much to politicians, research suggests that being perceived as spreading false information matters (Nyhan et al, 2015). This of course requires that the public does not see reasons to support a politician that trump concerns of blatant disregard of truth in which case they won't fear reputational effects. Until recently, that could be expected. Nevertheless, this study shows checking can be a useful tool if direct reminders to politicians are included. Therefore it seems a useful goal for news organizations moving forward to focus on. However, it is not likely to have large impact through Facebook's platform. This is not to

stay, that fact-checking posts can not gain large engagement and gain a large reach, but people are likely to react to it according to their preconceived notions.

By Government

From a government aspect a legislative measure could be an FDA for algorithms. A suggestion for this is outlined by Tutt (2016). It is built on the reality that algorithms now in a highly digitized world are such a large part of human life that there is a need for transparency in how they function, if they are possibly misleading and to assess the extent that regulatory measures and legal action needed. It is a question of power relations as few people have the expertise to understand how most algorithms function and even people with the necessary knowledge will have a hard time assessing such matters from the outside. Tutt's suggestion is creating a government agency in America, for he sees none of the current being able to properly take care of the assignment, would enable oversight of algorithmic functions while companies would be able to retain the necessary advantage of keeping their inner workings secret from competitors. Such an agency would be relevant in terms of algorithms that concern themselves directly with consumer products, such as personalization measures that provide recommendations based upon previous purchases and site behavior, but certainly also even more importantly in terms of algorithms that sort communication on platforms where the impact can reach into most aspects of society. Such an agency could provide consumers with valuable knowledge on relevant aspects of algorithms, while also keeping companies' creation of algorithms and the tweaks they make to them in check.

Another key area where government could take legislative measures to hinder the extent of Facebook's power is regarding anti-trust laws to combat monopoly. As mentioned earlier Facebook enjoys something close to a monopoly. Aside from of course creating a service that many people found useful, a key part of Facebook's near monopoly condition is that legislative systems were not ready for the rise of internet based business without any distribution or transaction costs. Facebook was allowed to buy Instagram and Whatsapp, in 2012 and 2014 respectively, and now enjoy ownership over three of the largest social media applications outside of China. While the status at the moment is likely not possible to reverse, future laws can be made from social media companies buying each other. While

this would not change the current picture, it could help avoid some part of future market expansion. Avoiding monopoly is increasingly important in terms of a communication service compared to a market service, because communication encompasses any part of life.

The damage is done in regards to allowing Facebook to grow that large, but measures can be taken to allow upcoming social media to compete. It could potentially lessen Facebook's hold on the market and thus the collective attention of people that it enjoys from citizens. One such measure could be to require social media to allow social graph portability. This is the practice of exporting one's friend list from one social media platform to another, the thing that Facebook was just fined 110 mill € for not disclosing the possibility of in regards to their purchase of Whatsapp (Reuters, 2017). Instagram used social graph portability off Twitter to allow users to easier build a follower base in the time before it was acquired by Facebook, and now it naturally does it off Facebook. Requiring this possibility for any upcoming network would lessen the incumbent advantage existing social media hold in the form of the networks built there, and make it easier for upcoming social media companies to build user base and thus popularity if people find their service useful.

The nature of tech companies such as social media companies that operate online and thus across borders further complicates issues of regulation, and will require complicated cooperation across borders, which until now largely has seemed to large and issue or too quick a development for legislative measures to usefully keep up. EU's antitrust laws, however, have had some limited successes in their focus which is more on maintaining competition rather than focusing on heightened prices for the consumer which is a bigger part of the American system at the moment, which is not relevant in this instance. It would be very useful for the legislation in the American context to adjust to the new realities of business to a communication company that already is close to a monopoly on social media, a key part of communication, to allow them to retain the monopolistic conditions where they essentially can kill competitors before long before they have a chance to become a threat, and possibly grow even larger.

Conclusion

Facebook has succeeded in gaining very large amounts of users and attention span to its platform. This has been informed by the success of their platform in extending social life, and adjusting it to the key technological advances becoming dominant on the smartphone. The popularity of the platform has been helped by the relatively new situation for internet based companies that exist in a world without costs of distribution and transaction costs where consumers then only used based upon which aggregator that can provide the best service, which in turn attracts advertisers which improve the product and in turn attract more users and advertisers. That allowed for strong growth and anti-trust laws were not usefully updated and therefore few objections were made when the company bought two other large social media companies in Instagram and Whatsapp.

The success of the platform attracted news organizations and numbers from 2016 showed that it was a significant source for news. However, some problems were shown to be present in the Facebook News Feed as a platform for news acquisition and consumption. The Facebook platform was shown to be a ubiquitous medium in its combination of a platform that extended social functions and smartphone that extended all senses but touch, and was perpetually accessible. The functional and visual setup of the platform was shown to contain a large degree of information in small spaces, contributing to an environment defined by ephemerality and a high degree of competition for content in a situation that favored easily processable, visual content. Furthermore, the algorithmic sorting factor of this environment, the EdgeRank algorithm assessed the content shown to a user based on content they had previously interacted with as well as the general interaction of ones network. These factors were shown to add to the competitive environment of the News Feed, particularly for business such as news organizations. Organizations that do not create engaging content will be marginalized in the News Feed.

While criteria of engagement factors can also serve to help content spread, they favor content that is not necessarily informative for a democratic citizen. Content of a lighter nature has better conditions, and this was also supported by a study that found only 7 % of hard news content was clicked on. The News Feed was also shown to be a medium where users were exposed to less ideologically opposing content due to its algorithmic sorting. It is therefore concluded that the News Feed can not be expected to be a useful

source for news to inform a citizen usefully about important political matters of a democratic society. The role it occupies at the moment is not enough to call it a threat to democracy. It is still not a dominant source for news for the American population as a whole, but it is already a significant factor, mainly due to the fact that younger generations use it for news and it therefore can be expected to grow in importance as a news source in the future, and it therefore will be an area to monitor since it does not necessarily provide good conditions for news about important public matters to disseminate.

Possible solutions were discussed to combat the issues of useful news dissemination of Facebook. The company itself has taken measures to combat click-bait and fake news, which indicate they are ready to accept their responsibility as a major distributor of information, something they tried to avoid for long. Changing the measures that cause the filter bubbles can not be expected because it is a key part of how the platform as whole functions, which also informs their business model. For citizens the main line of thinking was to be aware of how the News Feed functions and not to view it as a source for news that necessarily was representative of a wider picture due to the limiting factors of the sorting. For news organizations it was suggested that they did allow themselves to be controlled by the criteria of the competitive News Feed, because the criteria are not necessarily conducive to their goals. For the American government, updating the anti-trust laws to hinder monopolies in the area, as well as creating an agency to oversee and regulate algorithms which are used in a large part of human life, including the distribution of information on Facebook. The distribution of information on Facebook is not a cause for concern for the democratic citizen that is aware of how it functions, if the information we have about its functions are fits reality. But if such awareness is lacking and Facebook is used as a dominating news source, the properties showing users content they like, and the aspects of strong competition and ephemerality in the setup, will hinder the citizen significantly.

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