

# **The Potential of Social Media to Impact Environmental Action:**

## **Insight into the use of social media as tool for shaping sustainable institutions**

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# 1. Introduction

In this introductory chapter, we offer a brief overview of the problem we will approach, our research question and sub-questions, and provide an overview on the structure of this paper.

## 1.1. Problem Statement

Humanity is facing dynamic and insidious environmental challenges and will continue to do so in the future. How humans respond to these challenges plays a crucial role in either exacerbating or solving many of these issues. Examining what impacts human behaviour, such as why we act or not on to solve a challenge, and how, is becoming an essential component in finding a sustainable way forward. In this respect, social media has become a major influence in people's lives, and with it, the emergence of new aspects of power relations. There are several examples of social media raising awareness, affecting action, and even mobilizing movements in recent years. However, there is also a growing concern over the technologies used to drive social media, such as how algorithms impact our decision making and the apparent formation of echo chambers. Building on this, there is a great need to understand the potential of social media and its associated technology as a tool for influencing human behaviour towards sustainable pathways and the removing or building of barriers towards sustainable institutions.

## 1.2. Research Questions and Structure

This paper analyses the impacts of social media and its related technology on human behaviour and action regarding the environment. Our overarching research question is: **What role does social media play in shaping sustainable institutions?** To assess this, we will use two primary foci: a social perspective and a technological perspective, as per the sub-questions below:

Sub-RQ1. How does social media function through networks to activate social norms?

Sub-RQ2. What are some risks and opportunities of the underlying technology and its uses?

Our paper begins with a brief background on our topic and then introduces our key concepts and theories used in our analysis. We then include our methodology and rationale for case selection and discuss limitations. Given that our RQ is divided into two perspectives, we also conduct our analysis in two parts following our two sub-questions. To assess the first, we build on theory using two practical cases: the #5forhvalen and #fridaysforfuture social media campaigns. To examine the second, we build on theory as well as bring in elements of research from surveillance, data science, and sociology. Finally, we combine the two perspectives to discuss the implications for our overall research question and their significance.

## 2. Background

This chapter provides a foundation for our research, specifically addressing the social and technological perspectives of social media. We explain these in greater detail, such as what social media is, its impact in our area of interest: Norway, and how it technically functions.

### 2.1. Social Media

Since the very first printed newspaper in the early 1600s in Antwerp (Orgeret, 2019), the nature of media has gone through a massive change. José van Dijck, media professor at Utrecht University, describes the invention of the internet as “the basis of a new type of networked communication” (van Dijck, 2013:5). She emphasizes how casual acts shared with a few are released in a public domain on the internet through social media, changing the nature of both public and private communication. Social media platforms fall into three groups that are not mutually exclusive; 1) social media networks, such as Facebook and Twitter 2) user-generated content, such as YouTube and Wikipedia 3) trade and marketing sites, such as Amazon (ibid).

At its core, social media regards the sharing of content. “These technologies permit users to navigate through a virtual world unbounded by time and space, as well as to influence and co-create rather than just passively observe and take it in” (Ballew, Omoto and Winter, 2015). These platforms also function in three primary ways: informational, relational and experiential. Respectively, this regards the production, sharing and gathering of knowledge and information, the building of digital social networks and identities, and lastly interactive and self-directed online experiences (ibid). The use itself of these platforms is often regarded as being motivated by the expansion of social capital and the desire to expand digital social networks is driven by the need to belong, support mutual beliefs, and increase social trust (ibid).

With an internet penetration of 99% in Norway, which is amongst the highest in the world, social media plays an important role in the way Norwegians consume information and communicate (Moe and Sakariassen, 2018). 81% of the population have a Facebook account, 59% have Snapchat, 52% are on Instagram, and 69% use YouTube (Ipsos, 2019). Traditional news sources, such as TV and print are declining, while almost 90% of the population consumes news weekly through online media sources (Moe and Sakariassen, 2018). In fact, 50% of younger people consume news via social media on a daily basis, with Snapchat and Instagram being the most dominant platforms in the age group of 9-18 years old (Medietilsynet, 2018).

Furthermore, research shows that citizens in many countries are moving away from mainstream politics, and with youth especially, they are replacing traditional forms of

engagement with new formats such as through online campaigns for consumer boycotts and social movements, characterized through their digital and social nature (Loader, Vromen & Xenos, 2014). Such campaigns have the ability to greatly impact public perception of an issue and spread awareness, such as the #metoo campaign for sexual harassment.

## **2.2. Technology**

To briefly explain the technological aspects of how social media platforms work, we need to expand beyond the researchers' own disciplines and into information technology and data science. When we do this, what we find that a key driver of these platforms is something called digital surveillance (Lyon, 2007). Surveillance is the monitoring of behaviour, though its purpose is often not just to understand but also to influence such behaviours. Digitally, information that is gathered on people becomes data, a by-product of this surveillance interaction that can be bought and sold (Zuboff, 2015; Zuboff, 2016). The success of such platforms as Facebook are due to dual factors: the social perspectives that drive the usage, and the technological factors that make the usage possible and both change how it is used over time.

While the social perspective can shed light on why more and more people work, play, and communicate the majority of their lives online, and the impacts this has in a society, the importance of the cyber sphere grows, and the technological perspective cannot be ignored. Technology has played an important role in shaping the relationship of a platform to its users, in that recent advancements have allowed for an increased ease in the ability to monitor and collect data, as well as the ability to store increasing amounts of it. Yet what is perhaps most important is to uncover how all this data is processed, and how it is subsequently used.

Here, algorithms have an important role: they are the code used to carry out a task. This is any code, designed to execute any task, like evaluate a data set. It can be simple, where fixed data points (i.e. a set of numbers) are given and the parameters or rules (i.e. finding patterns) are also given. The result of the algorithm's processes produces an output, such as an answer (i.e. the strongest pattern). Yet it can also be much more complex, such as through the use of artificial intelligence, like machine learning. Here, an algorithm can be given a set of data that continually updates (i.e. traffic) and the desired output or answer is also given (i.e. the shortest route). Then the algorithm produces the parameters or rules necessary in order to achieve this desired output (i.e. finding various paths), and continually improves as it builds from the updating data through reinforced learning (West, 2018). These algorithms are the technological drivers of social media platforms. However, understanding how these platforms take hold socially and impact behaviour, and the role technology plays, requires exploration into theory.

### 3. Theory and Concepts

In this chapter we define our main concepts: sustainable institutions and power. We then discuss the relevant theoretical frameworks for our social and technological perspectives, respectively.

#### 3.1. Key Concepts

Given that our overall RQ is “What role does social media play in shaping sustainable institutions?” an essential concept to develop is sustainable institutions. For this paper, institutions are defined as the “conventions, norms and formally sanctioned rules of a society” (Vatn, 2015:78). Institutions provide expectations, stability and meaning essential to human existence and coordination, and as such, they support, produce and protect values and interests.

Such institutions are not given but are created by people through a continual and iterative process that is constantly changing (see Berger and Luckman in Vatn, 2015), and as such, they are imbued with power. Sustainability as a concept means: “Meeting the needs of the presents without compromising the ability of future generations to meet their own needs” (UN, 1987). However, deciding what the current and future needs are, and who gets to make that decision, also relates to power. In putting these two together, sustainable institutions are defined for this paper as the conventions, norms and formally sanctioned rules that work towards sustainability by meeting the needs of the present without compromising the future. Yet because these concepts are imbued with power, this too becomes a core concept to study.

According to institutional economist Arild Vatn, there are many dimensions of power, many different sources of power, and many manifestations of power (Vatn, 2015). Understanding these are important, because power relations shape the very fabric of society. For this paper, we highlight two aspects of power that are specifically relevant when studying social media and its underlying technological processes: normative and coordination power.

Epistemic and normative power “concerns the capacity to influence people’s knowledge/perception, self-understanding, preferences, subjective interests and values as embedded in the conventions and norms in a society” (ibid:91). The power to influence others is hugely important and a central means for doing this is through information. Controlling or influencing the development, distribution, and access to knowledge implies power. Denying access to quality information or using disinformation or information overloading is extremely problematic here. The main reason are because of information costs, for example, when it becomes too exhaustive to discover what is real information, the costs to find and process genuine information rise, and this can function to disempower (Vatn, 2015).

Second is the power to coordinate or the capacity to organise. This refers to the ability to organise the actions and capacities of individuals, to pool them, and to influence individuals into becoming a member of a group. The ability of a society to coordinate action towards a common goal elicits power (ibid). A society with low costs of interaction, communication, or coordination empowers their individuals towards meaningful participation and action. In essence, the power to mobilise people to action is essential to consider and if the costs of interaction or communication are high, this functions as a barrier to action and disempowers.

### **3.2. Sub-RQ 1 Framework**

Of key importance for this paper is the ability of social media to shape norms and institutions as a transcendence of the physical and historical boundaries of culture (Stoknes, 2015). How norms are activated personally and socially, and the related rationalities, motivations and power relations are critical to examine. Specifically, norms are ‘activated’ through a process of: awareness of an issue with consequence, then understanding that an action can impact the issue which one can personally do, and then ascribing responsibility to become involved and actively impact the issue (Schwartz, 1977). Thus, a personal norm is activated and then action can ensue. It is important to note that in the years since its development, many argue for different specifics and contest some of the findings, such as what illicit pro-environmental behaviour (see Kollmuss and Agyeman, 2002) or what causes reasoned action (Vatn, 2015) However, in acknowledging this, we nevertheless use this description of norm activation for individuals, as an outline for our understanding so that we can expand on it from a social perspective.

It is important then to discuss social rationality and the role one’s social environment plays on the creation of these individual norms. A society has the ability to impact individual human motivation, change the motivations found in various institutional contexts, and alter social roles and relationships (Vatn, 2015). When this happens, the changing norms of a society become internalised and can influence individual preferences. This capacity to motivate is powerful then, because influencing norms can lead to eventual action (Schwartz, 1997; ibid).

The economist Elinor Ostrom argues that what happens here is a redefining of ‘utility’ or what an individual’s interests are, which then includes the social environment. This means that negative utility, or something that goes against our interests, occurs when we break with the given norms and institutions of our social environment (Ostrom in Vatn, 2015). Yet Vatn (2015) argues that this may be too simplistic and doesn’t adequately explain altruism and doing what’s ‘right’. Here, he introduces social rationality, as the ability of an individual to balance their own interests alongside the interests of others in various social contexts (Vatn, 2015).

The psychologist Per Espen Stoknes also offers insight into this phenomenon, where he describes the important role our social surroundings have through social network theory. He argues that one's social network has immense power over individual action, something that he argues can be even more powerful than economic incentives (Stoknes, 2015). Our physical social networks, which are all-encompassing networks of people in one's social life, create and spread norms, which effects everything from our awareness of an issue to our consumption patterns and behaviours (ibid). Plainly put, the actions of i.e. co-workers and neighbours, exert a powerful influence on individual behaviour. This is based on one's evolutionary psychological traits like self-interest, imitation, status, short-termism, and risk vividness (ibid).

### **3.3. Sub-RQ 2 Framework**

There are two important theories needed to examine our second sub research question. The first relates to people's cognitive ability to process information and the second relates to the fact that social media has been developed from the motivation of economic actors.

First, it is clear that people do not always have all the information necessary to act, and even if they did, it does not mean they could meaningfully process it. This limitation is called bounded rationality and it refers to this notion that information gathering, handling, and processing is costly, and that people may seek out a simpler, satisfactory approach, rather than the optimal one (Vatn, 2015). This occurs when it is too costly to determine what the optimal approach should be, so instead a simpler, satisfactory option is chosen. In relation to our study, we use this understanding to explain why people, for example, inform a social media platform about their preferences. Since there are seemingly infinite amounts of information available on the internet, such an action can drastically lower the cost to process the information deemed as important. However this action has consequences, as will be described in 5.2.

Furthermore, to understand the role technology has to play, it is necessary to conduct this study with some degree of interdisciplinarity. As such, we will be using a theory from surveillance studies called surveillance capitalism. As described by Harvard business professor Shoshana Zuboff, surveillance has taken on a new form in the digital age, one where surveillance is no longer solely about the direct relationship between those surveilling and those surveilled, but is also about the by-product that is generated in the form of information: data (Zuboff, 2015). In surveillance capitalism, this by-product of data can be bought and sold, and when this occurs, a "wholly new subspecies of capitalism in which profits derive from the unilateral surveillance and modification of human behavior" (Zuboff, 2016).



Such digital surveillance relies heavily on its anonymity, or the fact that many users are not aware of its occurrence and impact. Traditional surveillance is said to have focused on soul training towards positive behaviours (Galič, Timan and Koops, 2017), but disciplinary measures and oppression are replaced here by economic opportunity and profit. It could be argued that this moves more towards a model of control (Deleuze, 1992), where corporations can purchase information about individuals in order to alter patterns of consumption. What is most essential here to understand is that the development and use of technologies is not innocent, but driven by economic motivations with inherent biases and explicit consequences.

## 4. Methods

In this brief methodology chapter, we discuss the rationale for selecting our two practical cases in the analysis and conclude with important limitations for our study and research design.

We have chosen two campaigns related to environmental issues to illustrate the role of social media in creating awareness that could have an impact on people's norms and lead to action. We selected these campaigns because they cover two issues that are important politically and have large coverage on social media platforms such as Twitter, Instagram, and Facebook. Our selection also provides the opportunity to examine social media campaigns that have significant differences, such using one issue that has a local connection and is highly visible (#5forhvalen) as well as one with wider global coverage that is not (#fridaysforfuture).

In terms of sources, our study has used both news sources and academic sources in order to gain a holistic understanding of this issue. The rationale for this is to understand both the theoretical underpinning of social media as well as its practical role in society. We selected sources based on their reliability and validity and triangulated our facts whenever possible.

Finally, it is essential here to address the limitations of this paper. Our research topic is a challenging one because of the social context. Since people and social media are embedded in such a social context, identifying any sort of direct causal linkages is impossible. Thus, while we can observe processes of behaviour, understanding the exact internal reasoning of individuals beyond applying theory is not possible. Plainly put, we do not claim any causal links between social media and action. We cannot know the precise role social media has on shaping norms or why one internalises them. We also don't know to what extent the technology used on these platforms manipulates user behaviour or understanding. Thus, while we explore this topic and aim to provide possible explanations and insight, we primarily use general processes and understandings to develop our answers and for each of our questions.

## 5. Analysis

Given that our overall research question is first divided into two sub-questions, each with their own perspective, this analysis will also be split into two sections. The first section introduces two practical campaigns and then builds on theory to examine the function of social media through networks in activating norms. The second section works through interdisciplinarity to examine possible risks and opportunities of this underlying technology and its uses.

### 5.1. Sub-RQ 1 Analysis

This first section analyses the role of social media and how it can function through networks to share information, organize people and even create social norms. By drawing on the concepts of power and the theory of social networks from Chapter 3, we examine two social media campaigns. These campaigns allow us to illustrate the role of social media and its power to reduce costs for action and coordination, and how this can help shape sustainable institutions.

#### 5.1.1. Campaign 1

Due to its high visibility, the scale of the challenges we are facing related to marine pollution is enormous, and one that is difficult not to take notice of on social media platforms today. For Norway, one event in particular stands out. In January 2017, a whale was found stranded on a beach in Bergen and in its stomach was more than 30 plastic bags. The issue gained massive attention in Norway and on social media. Soon campaigns concerning plastic pollution were everywhere (Sylte, 2018). One such campaign, #5forhvalen, received more than 3,400 posts and hashtags on Instagram and has been shared and supported by both NGOs, businesses, influencers, and the public in Norway. The message of this campaign encourages people to clean-up whilst on the go, stating that if one in five Norwegians picks up five pieces of trash every day, the ocean would be spared from 53 tons of garbage daily (LOOP, n.d.).

From 2015 to 2018, the percentage of people, when asked, who thought of plastic as associated with ‘environmental issues’ increased from 2.5 to 45% (Sylte, 2018). During this time, the number of plastic-clean up events in regions near the location of the whale also increased 832% (Langeland, 2018). The engagement and spirit that Norwegians demonstrated towards reducing plastic pollution was enormous and the amount of plastic collected doubled since 2017 (ibid). For Norway, a country with a deep connection to the sea and coastal shores, the whale may have shocked people and was subsequently deemed socially intolerable. Today,

citizens, businesses, and the Norwegian government have taken additional steps to reduce plastic pollution and begin to solve this important issue (McCarthy, 2018).

### *5.1.2. Campaign 2*

Our second campaign relates to climate change, a fundamentally different type of environmental issue than marine and plastic pollution. “We have come here to let you know that change is coming, whether you like it or not” (Rigitano, 2018). These were the words of 16-year old Greta Thunberg at the COP24 in Poland in December 2018. Four months earlier, Ms. Thunberg decided to go on a ‘strike for the climate’, skipping school to let the world know it is time to act. Using a variety of media outlets, she has inspired thousands of students to do the same, striking every Friday and using the hashtag: #fridaysforfuture on social media. Since then, the #fridaysforfuture campaign has been widely influential across many social media platforms.

One of the largest movements resulting from this occurred on March 15, 2019. Over 1.5 million students went on a school ‘strike for the climate’ in more than 250 cities around the world. These large strikes continued every Friday in March. In Norway, on March 22, 2019 alone, over 40,000 students went on strike (NTB, 2019). The Norwegian word ‘klimastreik’ or climate strike was mentioned in more than 350 news articles in Norwegian papers throughout March 2019 and Greta Thunberg’s name was mentioned more than 800 times since August 2018 (Retriever, 2019). Today, posts using #fridaysforfuture have grown in number to more than 184,000 and on Instagram, posts using #climatestrike number nearly 100,000.

### *5.1.3. Analysis*

It is important to examine what insight these two campaigns can provide for the role of social media for influencing environmental action and building awareness of environmental issues. Social media platforms are a central source today for gathering information about environmental concerns, like those mentioned above. With its unique ways of framing, social media transmits information that flows to impact norms. It shapes how people understand issues like climate change and plastic pollution, as well as helps them to understand the actions necessary to support or address the problem (Bolsen & Shapiro, 2018).

With these cases of plastic pollution and climate change, we see that social media serves as a tool for spreading information, awareness and action, even when the nature of the two issues are very different. While plastic pollution is very visual, making it easier to communicate

with videos and images, as in the case of the whale in Norway, climate change and GHG emissions on the other hand, are a problem that is hard to comprehend let alone visualize.

Access to information is of central importance and builds on epistemic and normative power into the capacity to influence perceptions and values. Social media functions to drastically lower the cost to access information. The spreading of information and content is even one of the most central ways in which social media functions and the two campaigns illustrate how this can then lead to awareness and action. Specifically, individual motivation is impacted, where information has the power to affect our perceptions and values. Plastic pollution, for example, had a tremendous increase in awareness as an environmental issue after the beached whale. In this way, social media spreads information and generates awareness, leading to new norms in the given society. However, as seen with the beach clean-ups organised around Bergen, it also builds on the power to coordinate human action towards common goals.

The reason this occurs is that social media platforms drastically lower the cost for interaction and coordination, which in turn, enhances the capacity to organise and empowers people. This is evident with the climate strikes, which have been able to be coordinated without traditional spatial barriers. Specifically, what we see occurring is that social media builds on people's physical social networks, as described by Stoknes. Humans facilitate their own physical social environment with digital networks, which can include the same individuals as the physical one but can also drastically extend beyond this. This happens because of the ability of many platforms to expand what one might have physically considered their network. For example, Facebook may show an event that a friend's friend is attending. Whilst one might normally not know much about that individual who they aren't personally acquainted with, through social media they can see their activities because of their connection to one's network.

The power of this is staggering. In November 2011, Facebook released documents that demonstrated that of their 721 million users, there were 69 billion friendship links (Barnett, 2011). Following the notion of degrees of separation, or this very 'friend of a friend' example, they found that through Facebook, the average person is separated from the entire world at only 4.74 degrees (ibid). In other words, if one moves from a friend, to a friend's friend, to a friend's friend's friend, and then to a friend's friend's friend's friend (four degrees), they can access almost all 721 million people using the platform. What we see here is the important role social media has to powerfully and dramatically amplify one's social network.

Yet this action alone is not enough to understand its power. Social media is hugely accessible, in that it dramatically lowers the costs to communicate, organise people and spread information. While people are empowered by this, it is through the theory of social networks

that the power becomes influential on the individual. This is because, as Stoknes argues, our social networks have a tremendous influence, even more so than economic incentives, on individual motivation and behaviour (Stoknes, 2015). What we see through these campaigns, is that social media platforms function based on social networks, but that the power of this result is in the shaping and changing of social norms which may be internalised (Arnslett, Bjørnæs & Lannoo, 2018).

While we do not claim that social media is the sole cause of this, we nevertheless observe it as playing a fundamental role in society for shifting the way the public perceive issues. Due to the intrinsic nature of motivation and the embeddedness of our topic, we cannot know exactly what role it plays on shaping social norms or activating personal norms that lead to action. It could be as Ostrom suggests, where the individual's interests may have been served best in the past by, i.e. not picking up a piece of garbage that was accidentally dropped, but now that a social norm regarding pollution has formed, this action may generate shame, which creates a negative utility (Ostrom in Vatn, 2015). It could be that through our expanded social networks, as Stoknes also argues, it is our evolutionary psychological instincts that are aroused such as needing to imitate or gain status (Stoknes, 2015). Yet it could also be as Vatn suggests, where people are exhibiting a social rationality and acting altruistically at some level (Vatn, 2015). Unfortunately, it is not possible to know exactly which of these are occurring and in what ways. However we can observe the results, like when seeing the problem in their own environment, Norwegians appear to have generated social norms for behaviour with plastic.

In analysing both of our campaigns and building from our theories and concepts, we find evidence that social media can help to activate norms that are environmentally beneficial, such as with reducing beach litter and urging action for climate change. Given that more and more youth are moving away from mainstream political channels and instead are engaging in different social movements and campaigns characterised through digital platforms, understanding the power social media has in our lives is also crucial for shaping and changing our greater institutions and organisations for governing such issues. From our analysis, we conclude that social media has a powerful and important role to play in shaping sustainable institutions, specifically. With more people engaging in digital platforms like these, a new institutional arena is created that empower individuals with information and organisation. As was demonstrated with the two campaigns we discussed in this section, sustainable institutions can be greatly enhanced when people are empowered to access and share information, to raise awareness about issues, and to eventually engage in action to solve problems. However, as will be discussed in the section below, these possibilities do not come without serious risks.

## **5.2. Sub-RQ 2 Analysis**

This second section analyses the risks and opportunities of social media through a technological perspective. Drawing from the concepts of power and the understanding of economic actors and interest bias via surveillance capitalism, we aim to bring insight into this challenging topic and uncover the role technology plays and the impact it can have on sustainable institutions.

### *5.2.1. Analysis*

As shown in 5.1., social media can improve access to information and lower the costs for interaction and coordination. Both of these aspects empower people and help to create and promote sustainable institutions. However, while social media can facilitate access, it can also reduce or even deny it (Haggerty, 2000).

This phenomenon is often discussed in surveillance studies, whereby access to information, both granting and denying, becomes a form of control (Deleuze, 1992). Shoshana Zuboff put it eloquently when she stated that “asymmetries in knowledge are sustained by asymmetries of power” (Zuboff, 2015:83). As we have stated, knowledge plays an important role related to action because it helps shape one’s understanding on issues and solutions. If one controls knowledge, such as aspects of development or distribution, one has the power to determine the priorities of different issues, to influence how others perceive such issues, and to frame what and how people may act on those issues. Such knowledge can naturally be distorted into misinformation and can be purposefully withheld as a means to create ignorance and disempower (Zuboff, 2015; Vatn, 2015).

What is important to understand is that algorithms can function as such a facilitator. Through the seemingly altruistic goal of ‘tailoring’ information to one’s own interests and needs, algorithms can control one’s access to information. For example, algorithms display first on Facebook the articles most likely to be read by a user, or on YouTube, they present videos likely to be watched, as first. On Amazon, what items are most likely to be purchased are presented first based on previous purchases and other’s similar purchases. The significance of this is that alternative information, such as news sources you are unlikely to read or videos you are unlikely to watch, now have higher costs to access as these may be more difficult to find.

This risk, which sociologist Ulrich Beck refers to as digital freedom risks, revolves around the ability of social media platforms to enact control (Beck, 2016). Here our “choices in the twenty-first century world are set out for us by algorithms” (Burgess, 2016:3). These same algorithms are used to determine which people are more likely to want to coordinate and organise, and in which ways. It then makes those means and groups more available to them, but

at a cost: restricting access to others. For example, a beach plastic clean up event on Facebook may not be presented to users if they and their network are not found as being the kind of user likely to have this kind of preference. These echo chambers are precisely how social media can seem open from the outside and to observers looking in but be entirely closed for subjects and actors inside (Beck, 2016). In contrast with other forms of media such as printed newspapers or television, where biases are generally known (i.e. a tv channel as generally being conservative or a newspaper as being liberal) social media users may not even be aware that alternative information or events exist.

The biggest effect this has is that people are beyond boundedly rational. The idea that people do not have all the information or cannot process it is bounded, but when one attempts to gain different perspectives in order to make a good decision but is instead unknowingly denied access to all the facts, is another. The person is forced to decide, which they may believe is optimal and based on their due diligence, based only on partial, selected information. Using algorithms to control access to information and coordination, has moral, human rights, and even legal implications on a person's agency and ability to make decisions freely. This level of manipulation brings human free-will into question and may undermine even the most basic of democratic institutions. Granting access to only limited information is more analogous to propaganda, where information is biased in order to influence an audience and further an agenda by presenting a particular perspective and set of selected facts. But what kind of agenda do the algorithms social media is built on advance?

It is important to recall that algorithms are developed by companies, who, when engaging in surveillance capitalism, gain an understanding of a user at an unprecedented level (Zuboff, 2015). The use of data on users is rarely for innocent purposes, as there is a greater goal in both the development and uses of algorithms on these platforms. Here, predictive analytics become an essential element of the use of algorithms on social media platforms. Companies can, for example, use algorithms to determine which product someone is most likely to purchase and present those to the individual before other options when they search. They can also learn that a user has looked at, for example, a flight to Spain, and tailor advertisements in order to nudge that person into purchasing (ibid). This means that the ways algorithms are generally used on social media platforms is not just for understanding behaviour, but also for influencing it (Zuboff, 2016). Companies thus use algorithms alongside big data to find the most relevant information in order to get consumers to be bigger consumers, whether that is to stay on YouTube for hours and be subject to advertisements or to tailor products on Amazon to be impulse purchased or upgraded.

### *5.2.2. Risks and Opportunities*

In effort to synthesise this analysis, we thus offer insight into our second sub-question by examining the risks and opportunities of the underlying technology for social media and its uses. Through surveillance capitalism, technology provides the ability to collect data on an individual and use algorithms to understand and manipulate their behaviour. This can be, for example, through granting or barring access to information, which then drastically impacts the costs of handling and processing information (Vatn, 2015).

When complex algorithms use artificial intelligence and even machine learning, we can see that their uses to date have presented far greater risks than opportunity. For example, upon learning on Facebook which users were likely to vote for a certain political party, an algorithm targeted millions of people with advertisements that could have swayed their vote in the 2016 presidential elections in the United States (Solon, 2016; Madrigal, 2017). This poses a huge risk to democratic institutions, which aim to protect people's basic human rights and needs. We find that, while it is clear that some economic and social institutions need to be reconfigured to, for example, use resources with greater concern towards the future, the breaking down of democratic institutions and replacing them with ones in which people lose aspects of their free will, does not further sustainable institutions.

Not only do they replace democratic institutions with those that limit human agency, they also further unsustainable institutions by manipulating consumers and promoting an increase in consumerism. The agenda of the company making and using such algorithms on social media platforms is a simple one: to make money. The pursuit of making money at the expense of people's rights is driven from precisely the kind of motivations that have caused the dangerous unsustainable development and the unrestricted exploitation of the planet's natural resources we have seen to date (Vatn, 2015). As they are currently being used, these risks that such algorithms pose to sustainable institutions is paramount and may indeed be promoting some of the key barriers towards sustainable pathways and transitions.

So where is the opportunity in all this? If we exclude the moral discussions embedded in this section regarding agency, it is important to remember that algorithms are designed to carry out a set task. While the dangers and risks are indeed numerous, it is still possible to consider the uses of these technologies for a 'greater good.' For the sake of argument, let us set aside the fact that the current use of algorithms is undermining of democratic institutions. These ethical implications aside, some opportunities can be found, in using such algorithms as they are now, except with a different motivation besides money but rather to incite environmental



action. While so far, the development has been for economic gain, what if they were used for more sustainable motives?

For example, what if an algorithm was used to manipulate votes for a political party promoting radical social shifts towards sustainability? What if the products being pushed for purchase were the more environmentally-friendly options? What if the same algorithm used to predict who will vote for a political party was used to predict who will be likely to deny climate change? Then, instead of presenting that individual with information or evidence of their social network's opinions to either confirm or change their vote, such tactics were used to cause a change of mind about climate change, or to manipulate people to become more likely to support an environmental policy or push for the sustainable change of an economic institution? All in all, what if algorithms were used on social media for the greater good? After all, issues like climate change threatens not only humans, but also the very existence of other animals and plants. Would such need for action be more important than the agency of certain individuals?

## 6. Discussion

The social and technological perspectives of social media have been discussed and have been analysed through the concepts on knowledge and coordination power, as well as through their respective theoretical frameworks on social network theory and surveillance capitalism. In this chapter, we bring these two perspectives, or two sub-questions together in order to gain greater insight into our overall research question: What role does social media play in shaping sustainable institutions?

When social media functions to lower the costs of access to information and the capacity to organise, we see that massive social movements can ensue. For example, people may internalise norms about pro-environmental behaviour and generate positive utility for themselves within their social environment. As Stoknes argued, it is in this way that human beings can be 'hacked' into acting more environmentally friendly (Stoknes, 2015). As social media platforms amplify access to our social environments, we become digitally connected to our physical social networks, and these are expanded beyond traditional temporal and spatial boundaries. Social media also may allow us to see with greater clarity and increasing access the actions of others and to compare ourselves and imitate. Furthermore, there may be elements of status and competition, and that due to social cascade effects, people present their best behaviours through social media rather than communicating their worst (ibid).

In terms of sustainable institutions, such a process can work in favour of generating or promoting institutions for sustainability. While it does come down to the specific uses, social media can lower costs which functions to empower people. We see explicitly that social media is being used as a tool to raise awareness and incite action, such as in our two campaigns for plastic pollution and climate change. It can also activate norms outside of larger social movements, such as by internalising sustainable norms and mindsets, i.e. through individual efforts to recycle plastic or conserve water. Using these peer pressure tactics can ‘supercharge’ attention and action and can even help generate sustainable social transitions and promote sustainable public policies (ibid). Though it is impossible to know specifically how, we nevertheless see that social media plays an important role in furthering sustainable institutions. It can lower the costs of gaining and processing information, as well as organising and coordinating action. By amplifying our physical social networks, we see that social media has the possibility to positively further sustainable institutions.

When social media functions, however, to raise the costs of accessing or processing information, or to limit organisation and coordination abilities, this works against sustainable institutions. The heavy use of algorithms on social media platforms to manipulate user behaviour towards further consumerism is evidence of this. Furthermore, the ability (however inadvertent or not) of this technology to be used to undermine democratic institutions and reduce human agency is also a huge danger. In 5.2.2., we placed ethics aside in order to discuss opportunities for using this technology. However, most of us cannot place ethics aside and thus to take advantage of these opportunities that may undermine the very democratic institutions necessary for solving environmental challenges and building up sustainable institutions.

While the reality of these opportunities does not thus seem a viable option, such an analysis, nevertheless, has allowed for insight into the understanding of the power the technology behind social media platforms has to further or block sustainable institutions. There is clear evidence that this technology behind social media platforms can function to both grant or limit access to information and to both limit and enhance the ability to organise. This impacts the costs of these and subsequently influences the empowerment or disempowerment of people.

Overall, when social media functions as a tool to empower people, we see that it has the ability to further and promote sustainable institutions. However, when it functions to disempower people, we see a serious threat to sustainable institutions. The significance of this is that we can see that social media has enormous role to play that is innocent and mouldable. It is ultimately how people use such a tool and its underlying technology that shapes its definite role and whether or not it can be a positive force for sustainable change in the world.

## 7. Conclusion

In this study, we aimed to provide insight into the role social media can play in shaping sustainable institutions. We discovered that in many ways, it is largely an issue of power and the ability of social media to grant or deny access to information and organisation. While people may be bounded, in that they cannot meaningfully process all information, social media becomes an important tool for filtering what information is relevant. As such, social media platforms provide an important arena for learning and understanding as a basis for decision making and eventual action

For our first sub-question, we see that social media amplifies our social environments. This grants us greater access to our social networks, which have the power to shape and activate norms. It also provides an arena for organisation, which keeps the costs of coordination low and can function to empower people. Traditional barriers like time, space, language, and culture, can suddenly be resolved as social media helps to bring people together to communicate and mobilise towards common causes. This is also the case for information, where it can help us to sift through the seemingly infinite amount of information and help process it in ways that may otherwise not have been possible.

However, this is not without risks. As per our second sub-question, the technology that drives these platforms can be dangerous depending on its use. In effort to aid the processing of information, it can nevertheless also function to deny access entirely, particularly to information that may not be towards a user's preference. This is resembling of propaganda, which can indeed pose a threat to free will and even undermine democratic institutions. Furthermore, the technology social media is built on can also function through algorithms for the sole purpose of profit to increase consumerism. Promoting consumerism and unsustainable economic institutions is hugely problematic. While this can be corrected for if the opportunity is taken to use algorithms 'for the greater good' it will still pose a threat to agency and democracy.

As per our overall research question, what we find from these two perspectives is that social media and its related technology has an influential but shifting role in shaping sustainable institutions. It can create a barrier or grant access to groups of people and events, thus impacting the cost of interaction and communication necessary for coordination and organisation. It can also grant or deny access to information, significantly impacting the cost to access, process and use it. We conclude that whether or not social media can further sustainable institutions and have a positive role towards a sustainable transition becomes entirely dependent on the impact and norms it ultimately shapes in society and the uses or abuses of the associated technologies.

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