Tech Giants of Social Media and Democracy*

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Abstract. In this paper we will approach the topic of social media
companies and how the keep evolving to cater more to their users and
increment their profits and how this influences democracy. There's the
potential to sway people's opinions and subsequent actions to a very
high degree, impacting society as a whole; the more a company grows,
the more power it has to completely dominate a certain market. Among
many others. We will approach this topic by exploring the impact and
influence of social media on society and its democratization and policies
from various points of views while attempting to answer our questions.

Keywords: Technology · Computer Science · Social Media · Social Net-
works · Democracy · User Privacy · Policies · Regulations · Manipulation
· Disinformation · Propaganda

Introduction and Objective

Social media is an essential forum for citizens to communicate, express,
interact, organize and mobilize, has altered how we interact with one an-
other, how we think, and to some extent, what we should think about. It
also facilitates sociopolitical factors that raise concerns about disinforma-
tion, sharing of knowledge and political polarization.

To understand their impact on political participation and civic ac-
tivities, it's crucial to examine the various ways in which they're used.
Facebook and Alphabet, for example, account for roughly 80% of global
ad revenues - a small amount of the sum in digital copies of newspapers
stays for them - the majority goes to online ad monopolies [7], this sug-
gests traditional media is losing its funds and relevance. We will tackle
this subject from multiple points of views, the pros and cons of social
media, and explore ways that, we as individuals can contribute to protect
the online environment. The internet is a big place, according to Hoot-
suite statistics[1], over 60% of the world population has internet access, and

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[1] Hootsuite & We Are Social (2021), 'Digital Around The World',
www.datareportal.com, 2021, https://datareportal.com/global-digital-overview

more then 50% of the world population is using some form of social media. The world is becoming more connected, but our ideas are becoming ever more divergent, the uprising of *influencers*, not everyone can distinguish real news from fake ones, fake content is being generated to grab views for profit, daring viral challenges on social networks cause teenagers to try life threatening actions and fake accounts are being used to manipulate individuals and collectives alike, not everyone has good intentions, in general, the freedom that social media gives also takes away. Regulations can't keep up with the pace of technological development of social media giants, government rules are insufficient and not very effective at covering all underlining cases, proving this to be a challenge for the future of democracy.

1 Research and Development

1.1 Means of Communication

The Old and the New

In the advent of social media up rising and social media giants controlling fast means of content delivery and information spreading, older information means such as newspapers, letters, radio and television, are struggling to compete or adapt to this new technological reality.

A simple example of the topic at hand is the replacement of letters with email and SMS. It is clearly a huge improvement for the environment, decreasing paper waste, near instant delivery compared to the considerable time and distance a letter would take to reach its destination, as well as improved organization.

Letters are still used for important things, such as Court Orders, Banking information, Legal information and other important societal notifications.

Some disadvantages of email and SMS, include spam and phishing, which have been on the rise due to Covid restrictions.

But what about newspapers? Radio? And T.V.?

Newspapers are being crushed, the high price required for making the journal, content verification, publish and printing, distribution, are expensive and slow processes, while social media displays content within seconds of being made, with world wide coverage, older generations are still willing to buy newspapers, claiming reliability of sources, announcements and deals, and enjoying puzzles to pass time, newer generations prefer free information sources, published online, accessible by mobile,

also enjoy reading Blogs, if this trend continues there will be no future for newspapers.

Radio is still broadcasting on AM and FM frequencies, however they also started using internet streaming services, AM and FM channels are slowly becoming outdated technology and started getting closed in many countries. Car users claim to use radio, however, newer generations are connecting into Bluetooth car speakers with smartphones to listen Podcasts and other streaming audio services like Apple Music or Spotify music.

TV stations are slowly losing ground, digital revolution is forcing a constant adaptation, new ways to watch series, movies, news, this market dominated by names such as Netflix, Amazon Prime Video, HBO and HULU, which are preferred as premium services, on the free side user driven content we have YouTube, Dailymotion and Vimeo as examples.

The freedom given to the user provided by new services, comes as a benefit for the users as they gain more options, for TV stations they became more digital while trying to adapt this new reality, on their struggle to survive they are mimicking online services with streaming features, this service will stay with us in the fort coming future, claiming a smaller part of the audiences.

Economics and Income

One question at hand is how these new age services generate income? There are many sources, by making affordable prices, on-demand content delivery, packages, ads, income from analytics based of user data, these are only few examples.

In general as the user base grows, the revenue grows, stock market and company actives become more valuable, the companies grow in power and presence, building towards a monopoly by eliminating, blocking or acquiring competition.

One recent event that happen, where Amazon and MGM, Metro-Goldwyn-Mayer, renown in the film industry for being a high quality movie studio, tried to break a deal, where MGM attempted to sell itself to Amazon[2], something like this would skyrocket Amazons streaming services, other studios also started looking for tech companies to ensure company survival versus the competition, this situation is causing market uncertainties.

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[2] B. Barnes, N. Sperling, 'MGM Looks to Amazon as the Hollywood Studio Tries to Find a Buyer', *www.nytimes.com*, New York Times, 2021, https://www.nytimes.com/2021/05/17/business/mgm-amazon.html

Advertisements, are one of the income practices done by companies, to sell products, to get more customers, to show availability of services, we see them on Billboards, TV, Radio advertisements, they are everywhere, the internet is not an exception, those that provide ad services claim there fair share over it.

When we talk about ads on the internet, we mean not only web pages, as ads are also seen on Social Networks, for example, ads between user posts. Between the most sought out ad engines there is *Google Ads*, this will monitor your personal choices, tracking your habits by using cookies, predict trends based on behaviour and provide custom tailored ad content to the user.

This has become very intrusive on our daily lives, recently Facebook been on hot spot for there policies, some claiming Messenger to filter keywords and context on personal messages for their Ad engine, this was never proven to be a truthful fact, as there was no evidence to prove such was happening. Which leads us to wonder, from where did this information come from, was it fake?

The Keyword Fake

As we become more connected, news spread like wild fire, more so if they have a shocking factor, something unexpected, new, original, unheard of, the *"Fake News"* are here, in fact they been following us, they are waiting for any unsuspected person to press the link. But what does that actually mean for those that press it?

It means the user was curious about a subject, maybe something viral, that more people are also falling for, this will generate income via ad revenues per certain amount of views, some of this fake news, have multiple pages of a brief story to make the user keep loading more pages of follow up content, each page is full of ads and analytics, the content has no reliable background or verified sources, and sometimes it is even generated with AI. To solve this issue, one must first verify the source of the information, if no source is provided going back is the right option, as there is no benefit to the reader if the information is unreliable.

The consequence of believing in lies, is a direct negative impact in our societies, take the example of the UK, where South Asian communities have been rejecting Covid vaccines, due to the spread of false information about vaccines containing meat derivatives, many communities rejected

taking this as it was against their cultural beliefs[3], this caused a significant delay to reach group immunity and prevent Covid spread.

Fake Accounts and Impersonation

 Is banning a user or limiting the user from doing certain actions, reasonable? Are there special cases? Seems so.

Social Networks brought us closer to each other but we face a big threat, fake accounts and impersonation, pretending to be someone else, arranging meetings, obtaining personal information, is becoming a big societal issue, this is viewed as a crime and there are laws for it, this is known as a *Cyber Crime.*

The users of a Social Network are not properly verified, everyone can be anyone, the requirements in most cases are, a new email account, a picture, a name, a social position, a work place and some background information, creating the perfect impersonator alias.

Imagine this scenario, an important person of your own recognition, which you where sharing information, appears as a new account, sends a text message, it says, "Sorry, had to connect with another account, can you send me the details about information X?", at this point one can be tempted to provide requested details, but if that person is not who he claims to be, such information leak can be disastrous, depending on the nature or secrecy of it.

In the same line, Adulterers are impersonating Teenagers, attempting to convince other Teenagers to have personal encounters, to make matters worse, parental control tools on Social Networks are often insufficient to prevent a bad turnout of events.

To prevent such from happening, it is recommended to double check the authenticity of the account, preferably in person or via phone call, reporting this incident, to all involved parties who should be of knowledge.

Nowadays Social Networks have knowledge of this and are attempting to mitigate and verify legitimacy of accounts by implementing AIS (Artificial Immune Systems) on there networks, we have no further information about success rates, but we view this as step forward.

Advent of Social Networks

 With the appearance of Social Networks, society has lost a piece of itself, as many users become more reserved, more isolated, introverted, addicted.

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[3] S. Kotecha, 'Covid: Fake news causing UK South Asians to reject jab', *www.bbc.com*, BBC, 2021, https://www.bbc.com/news/uk-55666407

These networks range all generations alike, screen time has risen, even out of home, users use their mobile on daily commute, often inducing bad habits.

Do to being centralized, when a data breach happens, user data is spilled on to the web, often containing important information we don't wish to see online, Facebook has had data breaches, and is completely aware that it will happen again, in recent events approximately 533 million users from 106 countries had their data breached, an internal Facebook email says *"We expect more scraping incidents and think it's important to both frame this as a broad industry issue and normalise the fact that this activity happens regularly,"*, as stated in BBC News Report[4], this is a clear disregard for user privacy, as they didn't even notify the users that had the data exposed.

Older means of communication where more informative and reliable, even with censorship, no personal details where required to get informed or to communicate, today the excess of information requires filtering to distinguish what is true from what is not.

Humanity has risen and evolved, do to advanced communication skills and passing knowledge to newer generations, in a way, Social Networks given us more mouths, but slowly takes away our brains, at this pace we might end suffering a *Babel Effect*.

1.2 Political, social impact of social media

Social impact

Currently we're living in the middle of a pandemic - the time spent in social media is naturally higher right now. People spend more time on their devices looking for entertainment, to fulfill themselves. A group of journalists set out to reach the younger populations in the United States and question them on various subjects of their lives [2], including their experiences using social media. Social media has been replacing traditional media for years now, with these youngsters reporting they expect these platforms to pretty much "hand feed them" what they want to consume. Companies holding social platforms such as Youtube, Google, Facebook (dominating their respective markets) nowadays have the power to decide what content to redirect to its users, what to show - because that's what the people want. Still from this article, youngsters mention wanting to watch content on these platforms that reflects "what a regular day is like

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[4] BBC News, 'Facebook downplays data breach in internal email', *www.bbc.com*, BBC, 2021, https://www.bbc.com/news/technology-56815478

for kids their age" for example; girls saying they want to see more discussion on "building confidence and navigating changing gender norms".

From analyzing this article [2], we can't help but conclude these young men and women are leaning on these social media means to help them form their ideas on as many levels as possible. Before social media even existed, younger generations used to experience life on a more personal level. They would get advice from their family, teachers, friends, face-to-face, with human contact. Letting social media take the place of these entities is such an incredibly dangerous path to embark on. Financial interests from advertising companies come along for example. Let's imagine this scenario for example: a large clothing company is willing to pay Facebook an incredibly high sum to display an ad depicting a celebrity using one of their t-shirts. At first hand nothing wrong with this, seemingly. The problem is that people (younger people especially) are manipulable. If they see something shown on a regular basis by someone they see as trustworthy, they will gradually internalize what they see. Making a comparison to before and after social media: parents, undoubtedly the most important authoritative figures for anyone growing up, used and still do take part in their children's lives - by telling them who to trust, what to trust, what not to trust, etc.. Nowadays, social media, with its strong presence, aspires to be a parent as well. In today's society, making profit comes first. People's well-being is a secondary matter. The opposite should be true. We found this article very interesting - while it's important to analyze as much of the population as possible, young people are the future of the world, of tomorrow's society.

Political impact

As previously said, social media is altering who we are. Some of the most popular videos on Youtube often have views in the orders of tens of millions. Some of these people could be backed by rich companies, individuals, to produce content with the aim of swaying their viewers' political opinions to a certain level. The nature of social media so dictates it. The point is to keep people engaged but there's not much room for prolonged, well-thought discussion. No room for healthy debates. It's seen in various platforms. News usually have brief, sensational titles. Discussions are rarely ever properly backed and thought-out, written conversations end when someone displays dominance, consensus is rarely achieved. These holes used to be filled in the past through real-time experiences. This is to be expected, intellectual effort is not at all promoted. It is easier to present what you as an individual want to see and believe in, easier

to repeat (advertise) the same sentence over and over until it becomes your truth. Maintaining an impartial point of view about various subjects becomes a distant concept when everything is taken into account.

To add to all of this, it's especially difficult to limit social political activity in social media platforms on a legal level. In 2016, Donald Trump's presidential campaign funneled more than 24 million dollars in digital ads. Two of them were published in Facebook and wrongly accused current United States President Joe Biden of offering Ukrainian officials a billion dollars to drop a court case against his son [3]. Biden campaign asked Facebook to remove them, but Facebook replied by saying free expression is a basic right, and they won't object to it. Facebook didn't remove the ad in this instance, even though it's content was false - whereas they have removed countless posts written by ordinary people. Facebook shouldn't have this much power on their hands in our opinion - the inconsistency in treatment regarding politicians and civilians is evident. What should be done instead then? On one hand, it's arguable that eliminating political content is a form of censorship, not acceptable in its core by some pundits. Others may advocate that censorship is fine, precisely at the cost of free speech, as long as it's verified that the content is false. It's not really simple to solve.

All things combined we are witnessing a potentially dangerous recipe to challenge democracy as we know it. People, ideally, should have the chance to be as free as possible to form their character and beliefs. It's hard to guarantee it when we consider the notion that people like to stay informed, keeping up with everything that is happening around the world, for fear of missing out. It's a primal need, and social media fills it almost entirely.

1.3   Surveillance Capitalism

Traditionally, capitalism benefits through the exploitation of human labor and natural resources. Surveillance capitalism, on the other hand, earns from the collection, processing, and analysis of behavioral data via different digital technologies. It asserts unilaterally that human experience is free raw material for the translation of behavioral data. Although some of this information is utilized to enhance goods or services, the majority of it is declared as a proprietary behavioral surplus and is fed into prediction products that forecast what you will do now, soon, and later.

Data is a byproduct of internet activity that has been discovered by large firms to be a significant source of income since it can be sold to advertising businesses, who can then sell more and better. All of this

occurs under the guise of offering better service and, on occasion, asking the end-user to pay for it.

Humans are viewed as a resource that can be bought and sold, and their perspectives are affected by the whims of others. It is not just a direct attack on democracy, but it is also very near to a violation of human rights.

The concept of data as a worthless consequence of online activity for its owner but a literal gold mine for businesses contributes significantly to the developing problem of "radical indifference".

Being oblivious to the idea that you are being monitored, manipulated, and fed only one side of the story poses significant risks to both the individual and society.

A group of computer scientists and engineers from Georgia Tech cooperated on the "Aware Home" project in 2000.[5]

The smart house would monitor the residents' actions with the goal of empowering people to live more productive lives.

The team came to the conclusion that there was an obvious need to provide the residents authority over the dissemination of this information. All of the data was to be sent to the occupants' wearable computers. This concept, by definition, assumed an unshakable commitment to the privacy of individual experience. By 2018, the Aware Home's assumptions were gone with the wind. Today, these rights to privacy, knowledge, and application have been stolen by a daring market endeavor fueled by unilateral claims to other people's experience and the knowledge that follows from it.

The Nest thermostat and its siblings gadgets, like the Aware Home, produce massive new reservoirs of knowledge. But who is it for? These data stores, in contrast to the prior paradigm, are uploaded to Google's servers. Nest has no responsibility for the security of the data it gathers and none for how the data is used by the other firms in its ecosystem. Surveillance capitalism, at its core, resurrects Karl Marx's classic idea of capitalism as a vampire that feeds on labor, but with an unexpected twist.

Surveillance capitalism, rather than work, feeds on every part of every human's existence. Similarly to how industrial civilisation thrived at the expense of nature and now threatens to cost us the Earth, an information civilisation defined by surveillance capitalism will thrive at the price of human nature and threaten to cost us our humanity. Google was

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[5] Zuboff, Shoshana. The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power. New York: PublicAffairs, 2019, *https://temascontemporaneosdotorg.files.wordpress.com/2016/02/the-age-of-surveillance-capitalism.pdf*

the conception and practice pioneer of surveillance capitalism, but it is no longer the lone operator on this route. Facebook, Microsoft, Amazon, and Apple, along with the vast majority of other large technology companies, have taken this path. Using behavioral data in the same way as in the sci-fi novel west-world. Surveillance capitalism is no longer confined to the high-stakes dramas of large internet companies. Its processes and economic imperatives are quickly becoming the default paradigm for the majority of internet-based businesses. The products and services of surveillance capitalism are not valued. We are not clients of surveillance capitalism. We are the primary source of its critical surplus. Our personal experiences are scraped and packaged as a means to an end for others. The actual clients are the businesses that trade in its markets in anticipation of future conduct. Consider how the internet has become necessary for social involvement, how the internet has been saturated with business, and how trade has become subservient to surveillance capitalism. Our needs for a productive life compete with our desire to repel intrusions. This contradiction causes a mental numbness that makes us oblivious to the realities of being monitored, analyzed, mined, and modified. It predisposes us to justify the situation with resigned cynicism, to invent reasons that function as defensive mechanisms ("I have nothing to hide"), or to find other ways to bury our heads in the sand. Surveillance capitalism so leaves us singing in our chains.

Surveillance capitalism contradicts the early digital dream, consigning the paradigm of Aware Home to long-forgotten ancient history.

1.4   Filter Bubble

Social Networks are designed with the objective of keeping their users engaged for as long as possible. To accomplish this, these platforms make use of suggestion algorithms to select and only show the information that each user may find relevant. To make such predictions, these algorithms look at what the user has shown interest in the past and at what users that fit the same profile like.[6]

This phenomenon was named filter bubbles and introduced by Pariser[7], is described as form metaphoric wave of information which tends to flood individuums personal space and create isolation of that said individuum or groups in information bubbles.

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[6] Wilson, Steven Lloyd. "Social Media and Vaccine Hesitancy." BMJ Global Health, 1 Oct. 2020, gh.bmj.com/content/5/10/e004206.

[7] Pariser, E.: The Filter Bubble: What the Internet Is Hiding from You. The Penguin Group (2011)

Personalizing search results, companies like Facebook, Google, Amazon, and others, can and do manipulate unknowing users. Depending on what an algorithm decides to be relevant for someone, it may keep an individual's attention for a longer period of time, which immediately translates into profit for businesses through data collecting.

This on a larger scale contributes to the creation of platforms that foster the manipulation of opinion and, as a result, the manipulation of democracy.

Some of the consequences could be, Firearm industries inciting population via filtering and targeting information on certain groups of people in order to incite anger and hate against other countries and or groups of people, eventually triggering armed conflict in which Industries will sell weapons to both sides.

Analyzing the case of vaccine refusal [8], we can find generally highly educated, medium/high economic class people from first world countries with bigger adherence to the anti-vax movement.

Refusal of the vaccination is typically based on a person's lack of trust in medical experts and traditional medicine. When paired with other factors, homophily, the tendency for people to develop (non-negative) relationships with others who are socially significantly similar to themselves, adds to disdain for evidence that contradicts their ideas. It also becomes a sort of segregation for these individuals in the context of globalization.

Further the author introduces the concept of Social media echo chambers, where users only hear and see information that echoes their own beliefs further energize the anti-vaccine movement. Clusters of users with opposing views rarely interact with one another, leaving little room for constructive debate. Even though Social media leaves no ground for constructive debate, it provides a platform to express and disseminate certain points of view, and the author suggests more active and engaging discussion in this format by health organizations and medical experts as a means to bridge the information gap.

For many, social media has become the primary source of news and information, and this trend will continue, therefore we believe the author's idea is correct, especially in the context of a global pandemic, when the world is viewed through a media lens. Incorporating some simple and easy-to-understand concepts about health and vaccination into the curriculum

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[8] Infectious Disease Advisor Contributing Writer. "Social Medicine: The Effect of Social Media on the Anti-Vaccine Movement." Infectious Disease Advisor, 31 Oct. 2018, www.infectiousdiseaseadvisor.com/home/topics/prevention/social-medicine-the-effect-of-social-media-on-the-anti-vaccine-movement.

of children would be a powerful tool for countering filter bubbles in in the realm of the present global epidemic.

1.5   Speech moderation on social media

Mark Zuckerberg stated that since he was developing an early version of Facebook he focused on "give people voice and bring people together" [6], but nowadays with Facebook having around 2.740 million monthly active users, it seems that "giving people voice" is contributing to their division. It seems natural that giving people means to express their opinions and be heard is a good thing. We have seen movements like "#blacklivesmatter" and "#MeToo" that started on social media and raised a lot of awareness to racism and sexual harassment, respectively. However, we also see the same platforms that gave birth to these movements being used as a stage for hate speech and inciting violence, for example, when members of the Myanmar military where behind a campaign on Facebook that targeted the Rohingya Muslim minority [4]. Given the consequences of speech in social media platforms, questions arrive about if speech on social media should be moderated, who should have the power to regulate speech and how it should be moderated.

Freedom of speech and expression is the core of democracies and is recognized as a human right by the UN, however ICCPR states that the right to freedom of speech and expression may be subject to limitations when necessary, namely for "respect of the rights and reputations of others" and "for the protection of national security or of public order (ordre public), or of public health or morals" [1]. According to this it is reasonable to assume that speech on social media platforms must be subject to the same scrutiny. Speech that incites violence or poses a threat to the rights of any person should be removed from the platform. This standard is already being implemented by most (if not all) of big social media platforms like Facebook and Twitter. Facebook define hate speech as "a direct attack against people on the basis of what we call protected characteristics: race, ethnicity, national origin, disability, religious affiliation, caste, sexual orientation, sex, gender identity and serious disease". Though, speech is more than the words of the speaker. Speech depends on the intention of the speaker and its context. This makes it difficult to identify hate speech, especially when we think of this "speech" as being a phrase or image posted by a user that we might know nothing about. This can lead to posts being taken down wrongfully and posts that constitute

severe hate speech being allowed to stay up. The power to decide whether a post should be taken down, or even if a user should be banned from a social media platform can not be taken lightly. There are concerns that giving this power to the platforms themselves might endanger the right to freedom of speech.

The anti-monopoly argument is based around the idea that social media platforms such as Facebook, Instagram and Twitter can be seen as monopolies, due to their huge user base. If we accept this view, giving this platforms the power to moderate speech can lead to the discrimination of certain ideologies or distort the narrative to favor some others, e.g. "(...) If a private forum such as Facebook owns the only place to speak and to be heard, its discrimination among viewpoints will seem a lot like censorship (...)" [5].

The weakness of this anti-monopoly argument comes from the fact that it only stands if we assume that social media companies can indeed constitute a monopoly. In the recent past we have witnessed the rise and fall of social media platforms. As cited in [5] "In social networking, Friendster lost to MySpace, which lost to Facebook, and, while Facebook seems entrenched, there are many other social networks nipping at its heels". If a social media platform like Facebook would deliberately censor speech without any acceptable justification, it is likely that another platform where users could speak freely, would gain popularity. Moreover, giving the power to moderate speech to the platforms seems more reasonable than giving it to the government. The concern that moderating speech could lead to censorship does not disappear just by giving this power to governments, if anything it grows. If a platform has self-defined speech moderation policies that could be considered unfair or discriminatory, there is still the possibility for a new platform to rise with more reasonable policies. However, if speech moderation policies are imposed by governments, these policies must be applied to all social media platforms.

2   Conclusions

In this paper, we attempted to emphasize how, in order to understand and participate in future social, political, and economic changes, we must look beyond our individual experiences as consumers and adopt a critical stance in order to uncover the ideologies and vested interests that are driving these transformations. As social media's influence expands into all aspects of society, a critical examination of its implications has become a political priority, necessitating the development of new and sharp analytical tools.

Indeed, while technology has the ability to impact societal change, the direction of such change is determined by a variety of other choices and judgments. Political decisions and cultural variations alter the balance of communication ecosystems.

The capabilities of a platform to facilitate relational life while simultaneously creating new kinds of surveillance is determined not just by its design but also by the political nature of the society in which it is used: open and democratic or closed and authoritarian.

Censorship, privacy, and control are at the center of political reform, which in many circumstances shows disparities between transparency and individual rights.

Even global politics become a battleground, with nations employing network and information technology for military or commercial purposes.

The development of new geopolitical powers, such as China, calls into question the equilibrium established following the collapse of the bipolar world, which was fostered by American technical superiority.

The use of digital networks for political goals extends beyond their function as organizational and propaganda tools to encompass new kinds of social mobilization assisted by digital media, the development of new practices in journalism, and new means of sabotage such as those employed by hackers. Social media promotes new economic models while also influencing established ones. These developments have an impact on labor and consumption, and the longevity of digital economies are affected by the wealth and welfare of large social groups. The rise of surveillance capitalism, which extracts profits via social platforms, produces new jobs while also contributing to new kinds of social instability. The importance of antitrust policies that defined the broadcast media systems must not be diminished, but rather revitalized, by social media's hegemony and pervasiveness. Then there's the technological level. As new information technologies are created and adopted, material resources such as underwater fiber optic cables or hardware are produced and mobilized. According to

a new global division of labor, certain nations adopt the role of raw material providers, leaving others to drive innovative processes based on those resources. The environmental effect of digital technology compels us to reconsider the concept of a "immaterial" and sustainable digital economy.

Consumption habits and user re-appropriation impact our technology future as well. Conflicts over worker rights, the environment, and democracy are becoming increasingly linked with the expansion of digital technologies, and they seem destined to shape the future of information societies. In this complex landscape, we believe that the possibility of actively intervening in the evolution of information societies rests firmly on the ability to critically analyze its technological and political features.

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