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The Internets of the Future: What They Can Be for Civil Society

It is sometimes said that today's internet is different from what it used to be. As if it had become ruined or spoiled, ceased to truly help people, and started to be harmful to democracy.[1] This idea is much discussed by activists, programmers, and engineers. One of the most striking cases is the appeal[2] that Tim Berners-Lee addressed to a broad public audience in 2019. One of the creators of the World Wide Web, Berners-Lee writes that the internet was initially supposed to be something quite different and now it is important to refashion it, to come up with new technical solutions that will allow the users themselves to control their data. But behind each such opinion, pessimistic or still optimistic, there lies a certain vision of what the internet is and what it might be, as well as a certain idea of the desired future, as something the internet will help bring about or prevent.

The future of the internet and its impact upon the development of civil society hinges on how people understand the internet now. Herein, I propose to examine variation in how the internet is understood today, and how those differing visions may influence its development in the future.

"We just wanted to get packets [of information] from one point to another."[3]

Nowadays the internet is something different from what it was when it was invented and constructed as a part of people's lives. And it might change again in the future, maybe more than once. All kinds of mobile services and applications, modern messengers and streams, State Services and ride-sharing apps – none of these things existed just ten years ago. The internet was something that basically worked via browsers and computers, not ubiquitous mobile connections. Even 15 years ago, the internet was still called "the World Wide Web" or "the Internet", always capitalized, whereas now in English and other languages (e.g., Russian)

it is increasingly being written in lowercase, or shortened to just "the net" or "online."[4] Nowadays people simply say they "met online" or "downloaded something from the net," reflecting how such things have become increasingly embedded into their lives.

What part of this changing phenomenon will we still call the internet in the future? A purely technological description of it is not enough to answer this question. Even developers and engineers are saying that to understand the internet, one needs to understand what it is for different users.

And for internet users, the internet is diverse. When people say "internet" in daily conversations, they usually mean a number of components: texts, pictures, movies, memes, letters, music, programs, and algorithms. When the internet is used by organizations, the meaning of the internet includes not only wires, but also data that passes through them, content that users post. The internet is both technology and communication; it is infrastructure together with services and platforms.

In this article the term *internet* will not imply something holistic, a kind of stable technology with stable elements, functions, and meanings. On the contrary, I focus on the variability of what is called the internet and what acts under this name in society. Often the internet is understood in the context of the utopia that has been surrounding it since about the time it first came into being (and perhaps even before then – many scientists of the twentieth century were creating an imaginary of possible global data sharing networks). Initially, this utopia spread in the Western countries and developed in an emerging global environment. But the more people use the internet, the more unstable becomes the idea of one single view on it, claiming to have a comprehensive description of the phenomenon. Rather, it is necessary to adapt our understanding of the internet to various interpretations and technological solutions, which are already part of the internet and which will continue to multiply.

This diversity of definitions of the internet is something normal in a situation of constant technological change. The infrastructural configuration and social role of the internet vary in different contexts. The specifics of the internet in certain regions are influenced by the available type of telecommunication networks and other ways of transmitting the signal.

For example, optical fiber has allowed much larger amounts of data to be transmitted over longer distances at a higher speed. Mobile internet has made it possible to use the internet in new situations. But both broadband and mobile internet appeared in many Russian cities only by 2010. Not only the geographical location, but also the urban structure itself influences the perception of the internet. For example, in the city of Kazan, internet providers divided the market according to parts of the city, as they are rather remote and independent of each other.

Besides the infrastructural differences, it is necessary to remember about the variety of practices of interaction with the internet – these practices will differ for each group of users, locations, regions, countries (this is one of the important conclusions of the project Why We Post[5]). Some users, for example, associate the internet with public interactions, others exclusively with private interactions. This plurality of practices is particularly important in the analysis of civil society. After all, the originality and independence of user practices can be the basis for various grassroot initiatives.

How is the changing integrity of this multi-sided phenomenon maintained? Theories of internet governance usually argue[6] that there are several participants or actors involved in decision-making about its future: these are commercial companies, civil society, and national states. Let us consider how these actors try to influence the future of the internet.

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Corporations, governments, and civil society: three positions on the development of the internet

<u>Corporations (Facebook, Google, Yandex, Amazon and others)</u>

One possible future scenario is the internet that will fully belong to global corporations. Imagine that the internet does not exist as a whole phenomenon, but instead there are separate companies – Facebook, Yandex, Google – and each of them sets its own rules and tries to create an overall ecosystem which the user will never leave.[7] There can be almost anything in such ecosystems: communication, films and music, city maps and applications, working tools, etc.

In 2017, Mark Zuckerberg described the future as a global "social infrastructure" designed to "bring humanity together."[8] All kinds of social interactions (including the formation of "civil participation") can take place within this infrastructure. But even if we skip the critics' questions about the over-centralization of such a "public" system,[9] the question will remain: who will be able to pay for its maintenance?

Online services are often free for the user. But the payment for the "free" use is personal data, which online platforms sell to advertisers. This business model, named "surveillance capitalism," raises questions for civil society (data collection turns into surveillance; privacy and the ability to share something important prove all to be at risk), for nation states (as data is transmitted across borders, it is increasingly difficult to protect one's data-rights in such a situation); and for users (the information so collected can be utilized to profile and manipulate people's consciousness, not to mention generating super profits at the users' expense).

As corporate platform ecosystems evolve, they usually develop imposing paid functions. It is possible that the share of such paid services will grow. Perhaps, in the process of the development of paid services and the "free-

mium" model – with part of the services free, part paid (premium) – the most interesting functions may become paid: expanded access to educational resources, business platforms, communications, etc. And free services and content will remain either only businesslike and infrastructural, or "enticing."

Researcher Nicole Staroselski warns of a new "infrastructure" inequality: "Only those who can afford to pay will have access to data backup and adaptive architecture, and those who cannot pay will sacrifice their privacy and autonomy"[10]

Money and attention converted into advertising attention will not be the only currency; but also data itself will be a currency: the more data the user gives to one company, the more convenient service and better search system he or she will receive in return. This provides new opportunities for companies – the user's entire life can be analyzed, the data can be included in predictive models, and the likelihood of success in promoting new products and services will be even more effective. Similar schemes are available now in many apps with movies and books: they offer you only something that is sure to be appealing to you. It is worth bearing in mind that this can result in increasing "information bubbles" and the redistribution of power in favor of those who own data (and this is not the users themselves).

In response to platformization and increasingly closed-off platform ecosystems, user innovations are likely to emerge (standard technologies used with non-standard methods or for non-standard purposes); initiatives that develop users' skills (including the ability to work with their own data – as in the new Solid project by Tim Berners-Lee, described in the article by S. Ronzhin – to deal with privacy modes, to read legal documents); groups like sci-hub,[11] that combine activism and protest against the global copyright system and major owners of scientific information. Such activist groups and services create opportunities for those who cannot or do not want to use large monopoly-services. Perhaps, services which

are more likely to be alternative today may be developed, such as a browser that respects user privacy and does not collect query history, like DuckDuckGo.

The goals of corporations, however, may be transformed: corporations will begin to pay even greater attention to social impact on society (rather than just to market dominance or commercial profit): for example, in their internal performance indicators, companies will consider growth of well-being, strive to improve the education level of consumers and clients, etc. See, for instance, the multiple initiatives of different companies to develop social projects or their response to the coronavirus situation.

On the one hand, this means that companies will make a claim to take the functions of state or other "traditional" social structures, for example, in the sphere of education and culture. Google has already done much to preserve culture: Google Books and Google Arts & Culture, notwithstanding any criticism, are influential international projects in the field, that do not generate immediate profit.

The conclusive platformization of the internet entails another risk: platforms replace and displace various small internet projects,[12] which initially choose these platforms for their activities. This matter has been discussed for more than a year,[13] but the symptoms remain. When we use the internet exclusively with the help of platform services, the platforms absorb the "designers" and turn from the "market" of various service providers into monopolistic service producers. (Amazon first collected data about the best-selling products, but then created its own goods which best meet the market demands.[14])

The user relationship with internet services is simple and clear: pay for the service – receive it. internet services will be simplified, as any technology is simplified when it enters the wide market, so that it can be used by different people. The influence of platforms can also be reflected in censorship: for example, in 2018 Facebook and Instagram, following new US laws, imposed restrictions on conversations about sex.[15] This was supposed to prevent

new cases of sexual slavery organized via the platforms. An unpredicted consequence of establishing moral norms inside social networks, however, was the threat of closing many projects on sexual education, for example, in Russia blogs by Arina Vintovkina and Tatiana Nikonova.

An internet that has been turned into a platform for services could become another utility infrastructure, something like running water or electricity. It could be a stand-alone channel with content and means of communication, supplying us with movies, news, correspondence, and memes. In this form, it will not be the internet familiar to us at present, with all its complexity and variability, but something more akin to such closed and centralized platforms as VK, YouTube, Netflix and Yandex. Imparting upon the internet the status of a utility service does not automatically mean the collapse of all hopes associated with the internet, but does mean redefining the original internet utopia, whereby the internet is seen as a flexible tool for connecting everyone with everyone.

State governments and large international organizations

In the 2010s and 2020s in almost all countries of the world, internet governance began to take place with greater state involvement. In Russia, for example, the number of laws regulating the behavior of internet actors has increased dramatically. Similar processes can be observed in the European Union (GDPR), the United States and other countries. The combination of these rules, if viewed from afar, can create what some experts call a "state-platform"[16] – the position of state when it begins to act as a provider of conditions "that will help a person to discover his abilities and create for him a comfortable and safe environment and opportunity to realize his potential, as well as to develop and implement innovative technologies." Such a technocratic approach to the role of the state means that the state "will move away from providing single 'point' services (...) to dealing with complex human life situations

which are based on a single array of data and algorithms, to work with the data, that were jointly developed by the federal executive authorities." To realize such a vision of the future, states will need to collect, store and control citizens' data. States will need more and more data that will be in their jurisdiction and available to their regulatory authorities.

Already now, states are forging close relationships with corporations – striving to manage their policies with advertisers, as in the U.S., or forcing them to store data on their territory, as companies in Russia had to do after the adoption of "Yarovaya package." If the idea of such development continues to exist, we can talk about the possible platformization of governments. Another story involves the centralization of huge amounts of data, for example, by mobile operators. If that data is combined with what public services know about citizens (starting with schools and ending with clinics for children), then in its development it will look more like a dystopia of total power than the idea of the state as a service provider.[17] Greater intersplicing of IT companies with the state seems quite likely but how it will develop is still unclear. But it is worth bearing in mind already now that the expected role of civil society in this process is to tend to participate in the formation of this hybrid, and not only to oppose its existence.

Activists and Civil Society
When the internet first appeared, a large part of the world experienced strong change. Alongside with the qualitative change in technologies, many scientists and politicians began to say that the internet could change the world for better. Many conferences and forums discussed how the internet would become a tool for political mobilization, help people with disabilities, allow more free dissemination of knowledge, etc. The early history of the internet is full of such expectations, and in many ways, they were created by people for whom knowledge and technology were important life components.

Accelerating the spread of knowledge, political mobilization and greater inclusion were not the only promises of the internet. In the Declaration of Independence of Cyberspace, John Perry Barlow stated a key idea: the internet will allow many of the previous rules and laws to be ignored. For the pirate activist movement, which became popular in many countries at the end of 20th century, freedom of information was the main value. But the pirates did not focus just on breaking the rules. They wanted to change those rules. The pirate parties lobbied changes at the legislation level of single countries. The pirate movement changed not only the laws, but also the practices: the work of Napster and Pirate Bay began to influence the music and other industries, reducing the role of intermediaries in the exchange of works of music.

Legal initiatives and new copyright formats, such as Creative Commons, emerged and became popular. They made it easier to distribute music pieces and other works with the author's consent. The internet became part of the official activist political agenda and changed entire markets.

Not all the initiatives were able to implement their vision. The shape of many current internet projects would surprise those who used to think about decentralization and activism. Civic initiatives are spreading in many different environments, for instance, Tinder and TikTok. Civil activists, rather than placing their own photos as their main picture on Tinder, have instead posted photos of posters and descriptions of important political actions they support. If it is impossible to change the software, users possess inventiveness in working with the content or transforming the functions of these environments for their own purposes.

Internet activism does not only mean activism dedicated to the internet itself. It is also the use of the internet as a means of mobilization. Internet tools have been used around the world to organize assistance to victims of forest fires or other natural disasters. The protest movements of different countries have begun to use the internet on par

with leaflets and posters. Instead of calling or gathering people at home, activists have created groups on social networks.

Does the internet actually help social movements, or – apart from making communication faster – does it rather simply inherit previous methods of communication? Have the social media networks impacted political activism, for example during the Arab Spring, or were they more a tool for the established strategy of action? Researchers Seynep Tufekci and Christopher Wilson claim that social media primarily provided an opportunity for political activists to remain connected with one another, as they were out of the government control.[18] In this situation, representatives of national states are not inactive, trying to control online communications. John Perry Barlow's ideas that states do not have access to online bodies are becoming increasingly utopian.[19]

In response to the state subordination of the newfound communications, activists are proposing new initiatives, such as decentralized, anonymous internet, out of the control of large players. This is not so much about large projects like TOR, which is being developed together with U.S. government agencies, but about more compact and sometimes little-known projects.

The contours of the internet's future

Weak signals
Increased numbers of internet actors. Not only people and organizations connect to the internet. The meaning of the internet is beginning to encompass more and more entities: smart homes, cities, and items of clothing. There is an attempt to unite these entities together, not under the Internet of Things, but rather under the Internet of Everything (for instance, in the projects of Cisco[20]). The internet has long been inhabited not only by people, but also by bots, online-assistants, virtual characters. It is worth thinking if we are offering new internet users the

role of slaves and creatures who follow people's orders, or providing an opportunity for them to show themselves, even if now they seem different from us?

Fragmentation of private networks. In parallel with changes on online platforms (see above), which restrict the possibility for user self-expression, private services are now developing personal diaries, small internal networks for family and friends. At the end of 2019, Professor Sarah Oates of the University of Maryland described changes in internet expectations the following way: "People are less interested in one big internet, and are much more interested in smaller, more intimate online-communities and personal experience."[21] Thus, there may emerge isolated fragments inside the "Big Internet."

At the end of 2019, Bitcoin co-developer Marty Malmi wrote[22] about trust networks as a key technology – what is more, not only social but also technical. Malmi created the decentralized social network Iris,[23] where data is stored on a user's device, and user-to-user interaction occurs directly, without a centralized platform as the link it created. With this example, Malmi predicted the development of small, separate networks where all the participants trust each other and interact directly, and this interaction impacts the rest of online life. For example, an Iris user can set up search filters to show, firstly, results that are appropriate for people of the user "trust network."

Opting out of "Big Internet." It is possible to imagine the development of whole communities living without the net at all, and without and such platform ecosystems that most users of big cities are used to. In this case, the development of alternative mesh networks cannot be avoided[24] (decentralized airtight communication networks not connected to the "Big Internet") or emergence of large-scale new projects aimed at completely re-inventing the net (Berners-Lee).

In the same vein, this can be considered a desire for "digital disengagement" (a matter explored in detail in the article by Adi Kuntsman): people with access to all the

internet's possibilities nevertheless consciously limit themselves and do not avail themselves of certain services and/or technical solutions. Sometimes this is due to fears about surveillance, sometimes due to a rejection of commercial decisions. Such practices are attributed to developers and people who understand how the internet works, and who choose for themselves only a certain segment, ignoring all the others. Perhaps such "internet deniers" will come to the idea of reusing previously created gadgets.

The desire for decentralization. Changes in the internet are inseparable from political issues. The emergence of the internet in its current significance is associated with the international adoption of the TCP/IP protocol. But this decision was not the only one possible, and its adoption was controversial: many representatives of European countries did not like the fact that the protocol came from the United States (Abbate, 2001).[25]

It is possible that in the future the national interests of states will make corrections to the way the internet is developing. There is a desire for decentralization at the national state level. This is obvious due not only to disputes over internet regulation, but also due to the construction of national corporate internet platforms. Today, outside the United States, several countries (China, Russia) are promoting commercial projects to create their own platforms that will store user data within countries, as well as provide "traditional" internet functions. In Russia, there are several such services: Yandex and Mail.ru Group, which are ahead of the relevant services of Google and Facebook in terms of numbers of users.

Not only states fearing U.S. hegemony, but also new generations of entrepreneurs and technologists are agitating for decentralization. Researcher Nikolai Rudenko shows in his work that activists and entrepreneurs working with cryptocurrencies often project their own expectations, which were previously connected with the internet,[26] onto block-chain technologies. Thus, people disappointed in the revolutionary social possibilities of one technology,

carry their hopes over to the next technology – perhaps it will be able to realize their vision of the future. The TON initiative from the creator of VKontakte and Telegram Pavel Durov, which promised to create "their own internet" based on the already existing database of "Telegram" messenger users, closed down in May 2020.

Energy costs. The development of the internet may be influenced by factors which now seem unusual. However, amid the depletion of fossil energy resources, the problem of internet energy efficiency could become more important. One of the serious arguments against cryptocurrencies was the argument about disproportionately high energy consumption of blockchain for implementation of its coding and verification functions.

In a 2015 article, Chris de Decker, the creator of the Solar-Power Sites Support Scheme and the editor of *Low-tech Magazine*, wrote that to reduce energy consumption, a site should be static, whereas modern site design is geared towards extensive consumption of energy resources, both in terms of aesthetics and in terms of rhythm of work.[27] In addition, de Decker draws attention to the energy consumption of different types of communication: 3G networks consume 15 times more energy than Wi-Fi networks, 4G networks 23 times more.

De Decker's inference is to set a speed limit for the internet to stop the extensive growth of energy costs on the internet, based on relatively cheap electricity. This, in his opinion, can be done with the help of intensive and careful use of the internet at small capacities.

Satellite internet, involving cableless communication via artificial satellites, orbiting a thousand kilometers above the Earth. The first versions of satellite internet already exist, but so far they are expensive and inconvenient. Now one of the most talked about projects is Elon Musk's Starlink, but there are also Inmarsat, Outernet, and several other start-ups that still exist in project status, are very expensive, or are not demonstrating the speeds we are accustomed to with modern conventional networks.

The main question is who will be the first to create a really fast and inexpensive way to turn this technical novelty into an alternative to the internet that we know today. In the market of mobile operators and providers, the advent of satellite internet could completely restructure the relationships between users, providers, and states. However, now that satellites are increasingly being spoken about as lying beyond the jurisdiction of states, we cannot be sure that projects like Elon Musk's will be successfully implemented, rather than governmental ones. It is worth bearing in mind that providers often try to work not only with the infrastructure, but also with the content – to open up their publications and services to subscribers.

Calls to reinvent the internet. It is important to pay attention to new initiatives aimed at "fixing" or reinventing the internet. One of the largest such initiatives in Europe is The Next Generation Internet project. In 2019, one of its developers, Oliver Bringer, called it the "people's internet"[28] built on greater involvement of different people and regulation of business and created to promote transparency in the use of data (sovereignty of data is provided by the users themselves[29]). However, this is not the first initiative of this kind; previously the European Commission had the idea of creating D-CENT (Decentralized Citizens Engagement Technologies) and the platform Horizons 2020.

There are major initiatives that deal with promotion of the agendas of different groups and serve as a kind of mediator – for example, The Web We Want. They work with users and with single groups, for example, bringing together teachers and the parents of students.

In addition, MAZI and netCommons[30] are being developed in Europe. In various forms they claim that perhaps the internet concept itself, as we knew it in 2020 and before, should change.

The future of the internet for civil society

<u>Negative scenario: closed and manipulative internet</u>
For the past 20 years, Geert Lovink, a Dutch critical re-searcher, has repeatedly argued that instead of flash mobs for the sake of defending minority rights, gathering people for "occupy" campaigns, and alternative spaces for speaking out, the social networks are increasingly being used for right-wing populist campaigns and targeted ads.[31]

Civil society, which once seemed to be or indeed was the beneficiary of the internet, is now, on the contrary, suffering from the spread of modern services. This vector of the internet's change is viewed as a negative one. And it is not connected with the will of individual actors, but with many actions of different stakeholders, which are mentioned above. As a result, the internet is often a cause for conflict, and small groups or civil society have fewer opportunities for action than large companies or states. International institutions cannot artificially support mul-tistakeholderism,[32] and as a result, the internet may turn out to be an alternative utility service like running water, instead of being a space and a tool for opportunities.

What to do and what to consider in this situation? Perhaps not only the internet will change, but so will civil society, as we know it today. The very concept of "civil" activism is indeed changing: ten years ago, there was a different feminist agenda, there was no #metoo or other similar movements, and there was no political, public pres-sure on the technology companies' transparency practices and standards. Of course, a civil activist sometimes gets to choose which side to take, and it is often the choice of lesser evil, rather than an ideal future. It is necessary to be ready for this, as serious changes are impossible without some losses, including pleasant opinions about the world.

We may have to reconsider our views on what freedom of speech is, how different are the real and the virtual, where are the boundaries of private and public. But if now we look back, we will see that some of these changes have

already happened. Not long ago, using your real name on the internet seemed like something unusual, and now many users do it on social media. Ethical norms are also changing: the ironic and provocative statements of the 2000s, the headlines and photographs of those years, may today look like manifestations of ageism and objectification.

It can be assumed that the initiatives which today seem "convenient" and "harmless" will not remain such in the future. On the contrary, if the fragmentation of the internet now looks like a lack of fragmentation of the global network for civil initiatives, in the future it may be an opportunity to rediscover forgotten initiatives and learn more about the possibilities of local communities.

Positive scenario: internet of skilled users
We may assume that the most favorable scenario of internet development involves the development of a wide variety of user innovations, both technological and social. Even on a small scale, initiatives that are gradually changing the world are already in place. For example, there are local "micromedia" when people turn their phones with the ability to distribute Wi-Fi into independent media, something like a radio receiving station: you connect to the internet and get access to the files that only members of your network see. Such local projects can help a lot, for example, in the situation of a blockage or lack of access to external information.

Local projects, which combine both technological solutions and the social agenda, can exist not only in the distant future. We can look at local groups and their initiatives. These groups exist focusing on mutual assessment, such as parent groups,[33] local automobile fans, or fishermen. For instance, in the expeditions that we conducted with the Club of Internet and Society Lovers in 2017-18, we learnt different stories in every city. In Tyumen, female activists from the group Gerbera made a map of sexist advertising with the help of Yandex.Maps, explaining what was wrong with images of naked women advertising tires.

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What to do and what to think about in this situation? Decentralized user projects will not appear just like that. The relationship between people and technology should change. I see a potential in new educational solutions: groups modifying existing platforms and creating new ones. The experience of such groups can be useful for civil society. Today such projects look more like a weak signal, indirectly affecting the future, but this may solely be due to the optics of research: such initiatives are insufficiently studied and have yet to be included in the agenda of media or academic research.

It is important that users can unite when working on such educational programs to better understand how the internet works and what happens to it. We can imagine this by looking at the millions of people around the world today who have similar understanding of the human body's structure and how it works, referring back to medical atlases and the school courses in anatomy. It is worth remembering that the perception of the human body was quite different just eighty years ago.

Unfortunately, numerous courses on computer literacy and data analysis have not so far explained the more general principles and links between the different components of the internet and the skills to work with it. After all, practical skills are not efficient without knowledge of how modern technologies work. So, it is not enough to have a thermometer to understand why someone has a high temperature and what steps should be taken (if any). But today many people have basic knowledge of the body and what processes take place in it. Similarly, as we can measure our temperature today, we might be able to be researchers of our own life with the internet: to understand exactly how our communication circles work, what are the norms within them, where the platform limits us and manipulates us to maximize advertising profits, and where it helps and inspires, how the infrastructure and content change on the internet, how it differs from user to user.

For the internet to be built in a fairer way, users need to arrange their role as users to be more creative, more reflective, more inventive. Maybe, the main agenda for civil society is to support and encourage such user movements, if it wants to assert itself as a stakeholder in the future development of the internet.

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