Smart City: the arrival of a New Democracy or Digital Totalitarianism?

Умный город: приход новой демократии или цифрового тоталитаризма?

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Abstract
The main purpose of the article is to study technologies of a smart city to identify the prospects for digital democracy and risks of digital totalitarianism. The basic methodological optics is the discourse analysis, which involves the identification and comparative analysis of various concepts on the selected issues. The supporting methodology was the Case Study principles and the big data analysis capabilities of the Google Trends platform. The article makes a theoretical contribution to the understanding of the algorithmic nature of modern political power, which is the basis of urban technopolitics, as well as the complex configuration of Policy and Politics. Algorithms, as the fundamental basis of digital applications and smart city technologies, are beginning to permeate the entire life of a citizen, closely intertwining with the mechanisms of digital control, rating, political decision-making, extraction, filtering and sorting of information data. It is particularly emphasized that the traditional social reality is transformed into a sociotechnical reality (the phygital world), in which it is no longer possible to rigidly separate the social from the technical. The conclusions indicate that digital democracy is possible only on the principles of open source, while digital totalitarianism, on the contrary, excludes such a model. Without the inclusion of smart citizens, the process of discussion and political decision-making, digital democracy is simply emasculated into a good, but still narrow service on the part of the authorities. In addition, without comprehensive

programs in the field of political education, there will be no digital democracy, no smart citizens, only a smart elite will remain.
Keywords: smart city, digitalization, democracy, digital totalitarianism, digitalization of politics, digital democracy, network communications, algorithmic power.

Аннотация
Основной целью статьи является исследование технологий умного города для выявления перспектив цифровой демократии и рисков цифрового тоталитаризма. В качестве базовой методологической оптики выступает дискурс-анализ, предполагающий выявление и сравнительный анализ различных концепций по выбранной проблематике. Вспомогательной методологией стали принципы Case Study и возможности анализа больших данных платформы Google Trends. Статья вносит теоретический вклад в осмысление алгоритмической природы современной политической власти, являющейся основой городской технополитики, а также сложной конфигурации Policy и Politics. Алгоритмы, как фундаментальная основа цифровых приложений и технологий умного города, начинают пронизывать всю жизнь гражданина, тесно переплетаясь с механизмами цифрового контроля, рейтингования, процессом принятия политических решений, извлечением, фильтрацией и сортировкой информационных данных. Особо подчеркивается, что традиционная социальная реальность трансформируется в социотехническую реальность (фиджитал-мир), в которой уже нельзя жестко оторвать социальное от технического. В выводах обозначено, что цифровая демократия возможна только на принципах открытого исходного кода, тогда как цифровой тоталитаризм, напротив, исключает такую модель. Без включения умных граждан в процесс обсуждения и принятия политических решений цифровая демократия просто выхолащивается в хороший, но все же узкий сервис со стороны властей. Кроме того, без комплексных программ в сфере политического образования не появится ни цифровой демократии, ни умных граждан, останется только умная элита. Возникает опасность стирания грани общественного, государственного и частного, что гибельно для любой формы демократии, в том числе и цифровой. Тогда как цифровой тоталитаризм заменяет гражданина потребителем, ориентирует общество на тотальную деполитизацию с одновременной консервацией цифрового неравенства в пользу немногочисленной элиты.
Ключевые слова: умный город, цифровизация, демократия, цифровой тоталитаризм, цифровизация политики, цифровая демократия, сетевые коммуникации, алгоритмическая власть.

Introduction

The smart city concept started gaining real-world traction when political processes went digital, and the internet became ubiquitous in the daily lives of the general citizenry, political parties, cities, and states. The scope of the digitalization of politics is far greater than digitalizing all the regulatory documents, political images, and messages: this phenomenon is driven by the activities of major digital corporations (Google, Apple, Huawei, Facebook, etc.) that have created digital platforms (giving the users an ability to communicate) and network effects (methods of expanding the user audiences of digital platforms) [31]. Decentralized social networks have existed since before the internet, but once they went digital, they became thoroughly intertwined with every aspect of our lives. Manuel Castells is one of the first people to research various network effects. He described a number of specific phenomena within his concept of Network Power: Networking Power (the power of actors that can draw people into the network or exclude them from the network), Network Power (the influence the standards of network actors have on communication and globalization), Networked Power (specific manifestations of an actor's power over other actors within the network), and Network-making Power (actors' capabilities to construct networks according to their goals and values) [11]. Scientific interest in the networking mechanisms of the digitalization of human life prompted a reevaluation of attitude toward political power and its rather vertical, strictly hierarchical structure. At the same time, the expert reviews were polarized, noting that the smart city could either

provide new opportunities for democracy or conceal a totalitarian threat to the individual expression of civil liberties.

Network effects allow us to confirm that digitalization indeed changes the essence of traditional political institutions and erstwhile forms of political communication. A smart city concentrates every conceivable network effect, becoming a testing ground for finding the impact of digital technologies upon its people. Some consider digitalization an element of a special sociotechnological reality that replaces the traditional social reality. Many authors have been writing about the emergence of this new sociotechnological reality (or phygital world): B. Latour, L. Suchman, G. Lovink, I. A. Isaev, S. McQuire, and others. In this approach, digital information is not just data but also metadata that allow citizens to interpret and reuse all sorts of content. It also enables political actors to analyze ongoing processes and control the mass consciousness. Digital platforms were, however, originally created with their own special temporality: the internet protocols at their core are intended for the transmission of hypertext. Not only do they transmit and compress information, but they also register the time and location of its origin, track its routes, and record user activity on the internet (e.g., via cookies) identifying it with the specific browser of the user. This stream of metadata makes digital content social, and the tools that are used to process digital information combine technical processing with social processing [22]. These digital processes transform social topology into a closed loop despite the discreet nature of network communications. So who, or, more precisely, what is closing the loop of social topology?

Some researchers look for an answer in the social power of the algorithms and the algorithmization of power. The algorithm is barely noticeable, but it is a major part of our lives, including in the political sphere. The algorithm searches for information, filters it, and sorts it. It has a direct impact on decision making, content ranking, content recommendations, and newsfeed settings; it offers ample opportunities for very precise targeting. These researchers write extensively about algorithmic identity, algorithmic culture, and algorithmic life. F. Pasquale made an insightful comment about "authority as expressed algorithmically": algorithms directing the flow of big data and those interjecting into critical decision-making processes. In light of that, we think it reasonable to consider the approach suggested by D. Beer [9] who considers algorithms and their design an organic part of our sociopolitical landscape. In his works, he refers to M. Foucault [15] who noted a link between power relations and the existing discourses that make it possible for these discourses to exist.

Beer's approach stipulates that the power of algorithms lies in their capacity to define what is important, and what is not for any given individual. Algorithms become filter bubbles: while the algorithms are sorting the data, they have the capacity to expand but, more importantly, to limit the circle of social connections and reduce the scope of a given citizen's cultural and political experience. Interpersonal communication becomes dependent on the patterns, associations, and configurations of favored connections introduced by algorithms [9]. On the one hand, for most users, algorithms operate like an inscrutable black box. On the other hand, algorithms have a mythos of their own, that of the most trustworthy, objective, neutral, effective, and efficient means of arriving at truth. In his works, Beer suggests that algorithms are not just code, they are a fundamental concept that we use to designate certain phenomena. According to Beer, algorithmic power can produce truths through the functioning of systems and through discursive manipulation of approaches, norms, and modes of thinking. In other words, algorithms are one part of how modern power is deployed.

The potential of algorithmization and its risks are becoming increasingly relevant from the point of view of the powerful in light of the proliferation of the smart city concept. For example, IBM has its own Smarter Cities program within which the company develops cognitive ecosystems that comprise cognitive cities, homes, offices, cafes, entertainment centers, manufacturing sites, and a cognitive learning system. Moreover, IBM has moved away from betting on brain research and now pursues the concept of neural plasticity. According to this concept, a person's environment influences their development more than their genetic code. IBM considers human subjects as malleable brains that can be studied with algorithmic tools. IBM perceives human and computational (robotic) learning in the same fashion, as a system of algorithms [35]. At present, the concept of the smart city

is clearly being idealized. However, the current trends in the evolution of the sociotechnological reality and objective conditions imposed by the COVID-19 pandemic clearly indicate that, sooner or later, most large cities will use digital platforms to resolve their current issues. These include self-government, commerce, targeted advertisement, the election process, feedback exchange between urban residents and the government, crime prevention, energy consumption monitoring, environmental monitoring, and traffic monitoring. It is therefore important to understand which actors will participate in the creation of the algorithms and the imposition of them on digital platforms—will those actors be the citizenry, the state, the insular cliques of political elites, or the digital corporations themselves? How centralized will those digital platforms be? Will there still be a hard line between private, public, state, and commercial? All these challenging questions formulate the main goal of the article: to study the technologies of the smart city and to process the opportunities of digital democracy and the risks of digital totalitarianism.

Scientific literature review

Publications dedicated to the varied aspects of a smart city mostly focus on a limited number of research avenues. Some researchers conduct in-depth studies of smart technologies (N. Odendaal, A. Aurigi, N. Walravens)—the technological, informational, and communicational side of the equation. Other researchers, although also embracing technology, focus more on human resources, or smart citizens (J. M. Shapiro, J. V. Winters)—those are the urban residents who are sufficiently tech-savvy and are active on the sociopolitical scene. Lastly, some researchers touch on smart management (L. Calderoni, D. Maio, P. Palmieri, K. Kourtit). Many works feature a combination of these three components: smart technologies, smart citizens, and smart management. Having studied more than 50 publications in this field, A. Meijer and M. Bolivar have concluded that the concept of a smart city implies that its management is capable of attracting and mobilizing human capital via a partnership with private individuals and businesses using information and communication technologies [26]. The authors of the research make the following distinctions: the governance of a smart city (this is basically a traditional variant of decision making and the implementation of decisions that does not require any transformation of the governmental structures), smart decision-making processes (partial transformation of state institutions using data collection and network technologies), and smart administration (a more differentiated and complex level of the exploitation of digital technologies aimed at providing better service for the urban community and citizenry). Meijer and Bolivar review the issue of the legitimacy of smart cities in great detail, deliberating on the issues of power and democracy and engaging the citizens in the city's self-governance.

Bibliographic reviews indicate that a smart city gradually becomes the center of planning and city politics where the strategic emphasis is placed on the so-called happiness policy. The goals of this policy are sustainable development, assessing the residents' quality of life, and assessing their level of engagement with urban authorities (Smart Dubai[1] is an example of such a program). In other words, smart citizens must be happy citizens. This means that they have to be given more civil liberties and provided with training and opportunity to become engaged in the smart city's projects.

The smart city factor usually correlates with two models of smart citizenship: the republican model and the cybernetic model. The former concerns the sovereignty of the citizenry, and the latter specifically concerns their engagement in the informational and communicational sphere. The Republican Smart Citizenship Model is based on scientific data that provides the citizens with an opportunity to present arguments in favor of their position with regard to various urban issues, including political campaigns. The Cybernetic Smart Citizenship Model is based on liberal ideology and the decentralization of data. It focuses primarily on civil insights—the unique perception that each citizen has on the issues they encounter in their urban life—as opposed to focusing on general discourse. In this case, citizens must be able to collect data independently to keep their understanding of specific issues of the urban environment up to date. The fact that several models of smart

[1] Noori N., de Jong M., Janssen M., Schraven D., Hoppe Th. Input-Output Modeling for Smart City Development, Journal of Urban Technology. 2020. DOI: 10.1080/10630732.2020.1794728. Available at: https://www.tandfonline.com/doi/full/10.1080/10630732.2020.1794728 (Accessed: 10.02.2021).

citizenship have emerged is, according to Dutch researchers D. Zandbergen and J. Uitermark, a reaction of urban residents to emerging systems of digital control that have the opposite effect: they limit civil activity and impose a constant surveillance regime, pushing citizens to make certain decisions [37]. According to O. Söderström, the COVID-19 pandemic has revealed to the world three specific models of smart cities: the state model (in which algorithms, digital apps, and technologies serve as an extension of the existing authorities), the corporate model (the state loses its monopoly on the production and control of big data to the "platform" urbanism of Uber, Deliveroo, Airbnb, etc.), and the civil model (in which digital apps and technologies are developed and used by the citizenry and civil society organizations)[2]. Söderström stipulates that in the smart cities of the Global North citizens are critical of the introduction of additional forms of digital control, fearing for the privacy of their data and for their political freedoms. Meanwhile, the citizens of the smart cities of the Global South, in contrast, consider such measures a necessary part of the provision of services and an increase in the effectiveness of security measures.

R. Kitchin makes an insightful comment about the nature of the threats presented by smart cities: they come with trends in technological transformation such as the growth of rationality and the spread of realistic epistemology. These trends influence the reconfiguration of the city's information and communication systems for data analysis, geolocation surveillance, and urban manageability. They reduce the life of the city—and the political aspect thereof—to procedural logic and the rules of computation[3]. Cities now comply with the principles of dataficiation—a radical expansion of the range, scale, and specificity of the big data generated by people. Data-based urbanism gives way to an urbanism that is controlled by data that are processed by hundreds of algorithms. Smartphones regularly transmit user data to digital companies and their partners. The state, law enforcement, and security agencies can access those data. The traditional notices and consent forms can no longer protect the confidentiality of the citizen's data in an unceasing data stream. The authors note that people often feel powerless and anxious due to their hypervisibility; they also note that citizens are uncertain about the security of their data [20]. These results demonstrate the limitations of the smart citizen model due to its exclusive focus on liberal and individualistic Western values (those of Western Europe, USA, Australia, Canada, New Zealand). The transformation of a citizen into a user of private services without the development of collective models of political organization and identity renders urban residents helpless in the face of forms of digital control and the smart city's rules of the game, imposed by digital companies or the political actors tied to those companies. As a result, a citizen is reduced to an object of surveillance. For that reason, some studies present the concept of smart communities, as opposed to individual smart citizens (L. Qi, J. Guo). However, even in these works, the priority is not given to analyzing and predicting the development of citizens' collective forms of political participation in the life of the city through digital technologies but to smart homes, creating sustainable infrastructure, surveillance systems, visitor management systems, parking management, energy management, and energy conservation[4]. In other words, smart communities are currently under-researched and require further examination.

So far, the work on digital democracy and digital totalitarianism has little to do with the research in the field of smart cities, although it is difficult to deny that the digital urban space is becoming an experimental testing ground for the management of various political technologies of mass consciousness by the political authorities and digital corporations. Digital democracy is described as

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[2] Söderström O. The three modes of existence of the pandemic smart city //Urban Geography. 2020. 09 Oct. DOI: 10.1080/02723638.2020.1807167. Available at: https://www.tandfonline.com/doi/full/10.1080/02723638.2020.1807167 (Accessed: 10.02.2021).

[3] Kitchin R. The ethics of smart cities and urban science //Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences. 2016. Vol. 374. Iss. 2083. DOI: 10.1098/rsta.2016.0115. Available at: https://royalsocietypublishing.org/doi/10.1098/rsta.2016.0115 (Accessed: 10.02.2021).

[4] Qi L., Guo J. Development of smart city community service integrated management platform. International //Journal of Distributed Sensor Networks. June 2019. DOI:10.1177/1550147719851975. Available at: https://journals.sagepub.com/doi/full/10.1177/1550147719851975#articleCitationDownloadContainer (Accessed: 10.02.2021).

the deployment of the information and communication strategies and technologies used by democratic actors involved in the political processes within various communities (A. Timonen). Some specialists say that digital democracy does not reinforce traditional political institutions, nor does it make life any easier for politicians, but it does establish an important link between them and the citizenry [33]. Some intriguing research [38] suggests that there is a correlation between offline political participation and online expressive participation. Therefore, empirical evidence proves that there is indeed a special sociotechnological reality, and its advent will replace the traditional social reality. This phenomenon has the unique trait that hybrid forms of political engagement are developed within it, combining online and offline activity.

For the sake of fairness, it should be noted that there are studies devoted to the variety of problems with digital democracy. S.-J. Min, for instance, dedicated her research to the second-level digital divide factor that is linked to the multileveled access of users to information and communication resources. So what is this divide that can get in the way of democracy? This primarily concerns the disparity in users' digital skills. Social, economic, psychological, cultural, and other factors also contribute to the divide [27]. There is also a democratic divide: digital technologies only help active citizens while pushing those who do not engage with such technologies to the sidelines of politics.

Political scientists who study the phenomenon of digital totalitarianism sometimes base their research on H. Arendt's The Origins of Totalitarianism, which was published long before widespread digitalization. In her book, Arendt defines totalitarianism as a system that seeks to subjugate absolutely all spheres of human life through measures of control. Arendt asserts that this is the key difference between totalitarian regimes and autocracies. An autocracy seeks only to weaken political opposition [8]. Arendt's thesis about such signs of totalitarianism as loneliness and individual isolation in modern conditions of mass digital communications does, of course, require serious correction. However, if we employ the concept of the digital capsule developed by professor S. V. Volodenkov, we will see the theoretical landscape with new eyes. A digital capsule is the information and communication environment that is formed around every modern citizen. This environment offers them a complete model for the interpretation of their current political landscape [2]. On the one hand, the digital capsule adapts to the personal needs and characteristics of the user, but, on the other hand, it gives the user rather stereotyped and limited insights into the new sociotechnical reality that surrounds them. In other words, the core message Arendt had about totalitarianism is still relevant with regard to the existing mechanisms of digital control over the citizenry and the mechanisms that use their personal data to construct a worldview beneficial to a political actor.

However, the reworkings of Arendt's ideas and similar ideas by other authors are not always objective. On the contrary, these works often ideologize totalitarianism. For instance, C. J. Friedrich and Z. Brzezinski asserted that the political regimes of the fascist nations and the Soviet Union were essentially the same thing [16]. This assertion merits criticism: while the Soviet state had at its core the idea of the Internationale, the fascist states rejected any such idea. Applying totalitarianism theory to the Soviet Union within the framework of such comparisons likely aims to revise the role of the Soviet Union in the victory over the fascist coalition and to create a stable image of the Soviet Union as an enemy. Since Russia is the historical and legal successor of the USSR, the goals of these deeply flawed comparisons could have destructive long-term ramifications. There is an opposing evaluation of the nature of totalitarianism. M. Halberstam notes that there is a hidden link between liberalism and totalitarianism. In his book, he essentially accuses liberalism of being a secret ally of totalitarianism [18] although he does not elaborate on the role of the latter as a characteristically Western phenomenon. The first studies on the digital form of totalitarianism have already appeared [14], but thus far they remain few in number.

Methods

We chose discourse analysis as our main methodological approach. It presupposes the detection and comparative analysis of various concepts within a given field. In our discourse analysis, we formulated two basic research questions:

1. Is digital democracy possible in a smart city?
2. What are the risks of digital totalitarianism in a smart city?

The discourse analysis carried out was specifically work with the databases of the major publishing houses, SAGE and the Taylor & Francis Group. Case Study principles and the capabilities of the Google Trends platform were used as supporting methodologies to analyze search queries about democracy, totalitarianism, and digital technologies. This research was aided by the reconceptualization of the body of theoretical work by M. Foucault and the concept of the algorithmization of power by D. Beer. Let us then proceed to the methodological search for answers to the questions we posed.

Is Digital Democracy possible in a Smart City?

To answer such a question one must have a clear understanding of the digital environment and the digital technologies of a smart city that could facilitate the flourishing of digital democracy. The analysis of data obtained using Google Trends indicates that interest in democracy has been in constant, volatile flux worldwide since the early 2000s (figure 1). It is quite possible that this can be attributed to the elections regularly held worldwide and the recurring signals related to the electoral process. Even though such interest is very intermittent, the fact that there is consistent interest in democracy is an important indicator for the future of the smart city.

Figure 1. Interest in the word "Democracy" around the world since 2004

Big data analysis also showed that the topic "smart management" is the most popular among users, and the search query "smart community" also retains relevance, while the search query "smart citizens" is of lesser interest (figure 2).

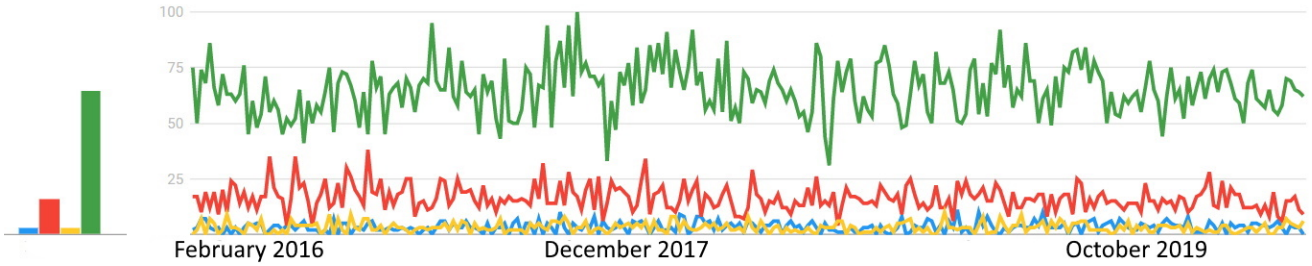

Figure 2. Searches for the words "smart management" (green), "smart community" (red), "smart administration" (yellow), and "smart citizens" (blue) in the world over five years

Passion for the idea of digital democracy in cities is associated primarily with the idea of "techno-politics"—a concept popular in the West. Techno-politics is usually explained by positioning democracy at the core of the sociotechnical reality. Through the lens of techno-politics, democracy is an ongoing process organized on special techno-political (digital) platforms. The techno-political approach emphasizes the importance of open source development, the availability of digital

technologies and projects, and the rights of citizens to transform those technologies and projects [23]. This approach is largely inspired by M. Castells's work on collective consciousness and network power. However, there is nothing fundamentally novel about this concept. The model of techno-politics arose from the assumption that the modernization of political regimes and their economic and social development depend on successfully introducing digital technologies into most spheres of life. For example, in a number of smart cities around the world, digital platforms based on Consul open source code have been introduced: Decidim Barcelona (Barcelona), New York City Participatory Budgeting (New York), A Porta Aberta (La Coruña), RIVP (Paris), decidimVLC (Valencia), Participativni proračun (Hrpellier-Kozina), Participa Getafe (Getafe), #TOLEDOPARTICIPA (Toledo), Decide Cieza (Cieza), Participa Mendoza (Mendoza), BA Elige (Buenos Aires), Orcamento Participativo Digital (Porto-Alegri), Renca Decide (Santiago), DzialaMy! Wawer (Warsaw), Stem van Groningen (Groningen), Stem van Emmen (Emmen), Jouw Badhoevedorp (Badhuvedorp), etc. An open software platform can be used by any citizen or any organization based in the city[5]. It allows citizens to make proposals; take part in voting; initiate debates on urban issues; participate in the discussion, monitoring, and evaluation of the disbursement of the city budget; enter into discussions on legislation (with the visualization of comments in the form of a color code).

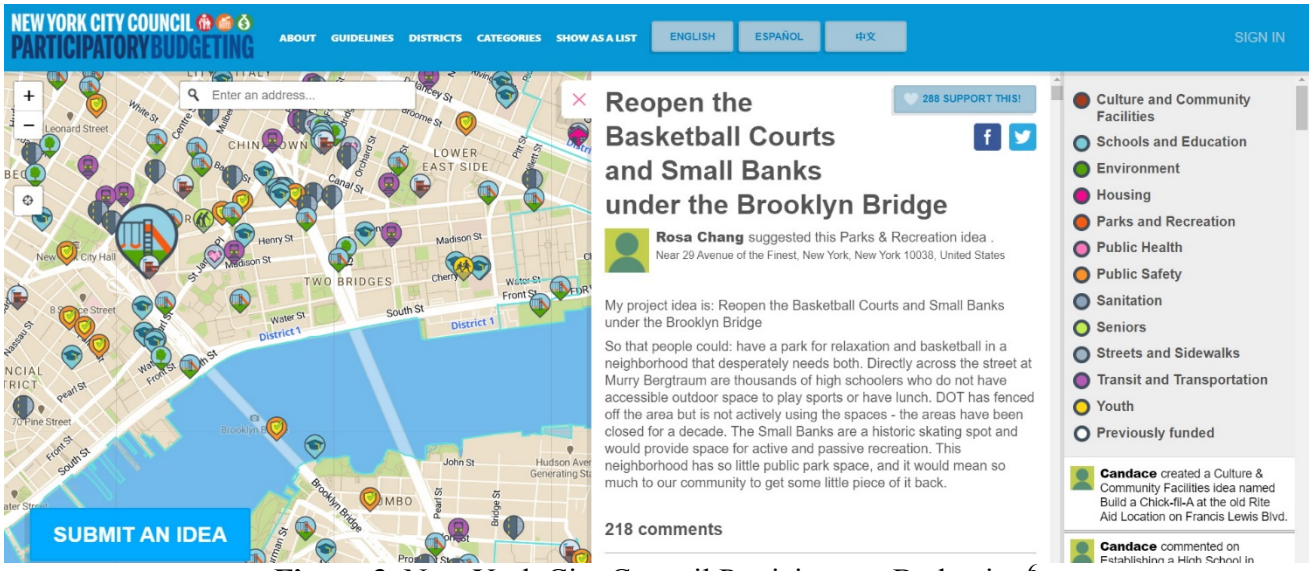

Figure 3. New York City Council Participatory Budgeting[6]

A good example of digital democracy technology is the New York City Council's Participatory Budgeting system. Through this platform, citizens mark problems on an interactive map of New York and provide specific suggestions for solving them (figure 3). It is obvious that the city's authorities have implemented this model to create an additional mechanism for the democratic legitimation of their policies. Urban issues are highlighted with colored markers corresponding to the following themes: streets, education, transportation, the elderly, health, public safety, sanitation, culture, parks, and more.

On the open-source Decidim Barcelona platform, proof of the citizen's place of residence is required to obtain the right to discuss urban issues. The most popular proposals introduced by citizens in the field of urban policy are commented on by residents and implemented by the authorities upon review of their technical and economic feasibility. The authorities are also obligated to evaluate the comments of citizens on budget planning at the district level (issues of transport, bike paths, entertainment, sports facilities, noise monitoring, tree planting, etc.). However, researchers

[5] Consul. Available at: https://consulproject.org/en/ (Accessed: 13.02.2021).

[6] New York City Council Participatory Budgeting. Available at: http://ideas.pbnyc.org/page/about (Accessed: 13.02.2021).

note that such platforms are still very much dependent on the offline activity of the citizens and their involvement in city debates[7].

The Decidim Barcelona model is called the "provincialization of the rebellious city"—the response of smart citizens to the government-imposed model of "ontologizing the smart city." Ontologization means that the authorities do not regard the smart city as just special software with standardized algorithms and the interoperability of applications and systems. Ontologization means a hegemonic model that is attractive to authorities because it allows them to control a city as a vast database [12]. Digital democracy is fueled by the rejection of the very essence of this model. It is based on the principle of the citizenry achieving "technological sovereignty"—the dissemination of accessible digital systems that run on free open-source software. This brings us back to the phenomenon of sociotechnical reality. Some believe [30] that urban data streams are so dependent on human activities intertwined with the mediation of technical systems that it makes them all the more tangible.

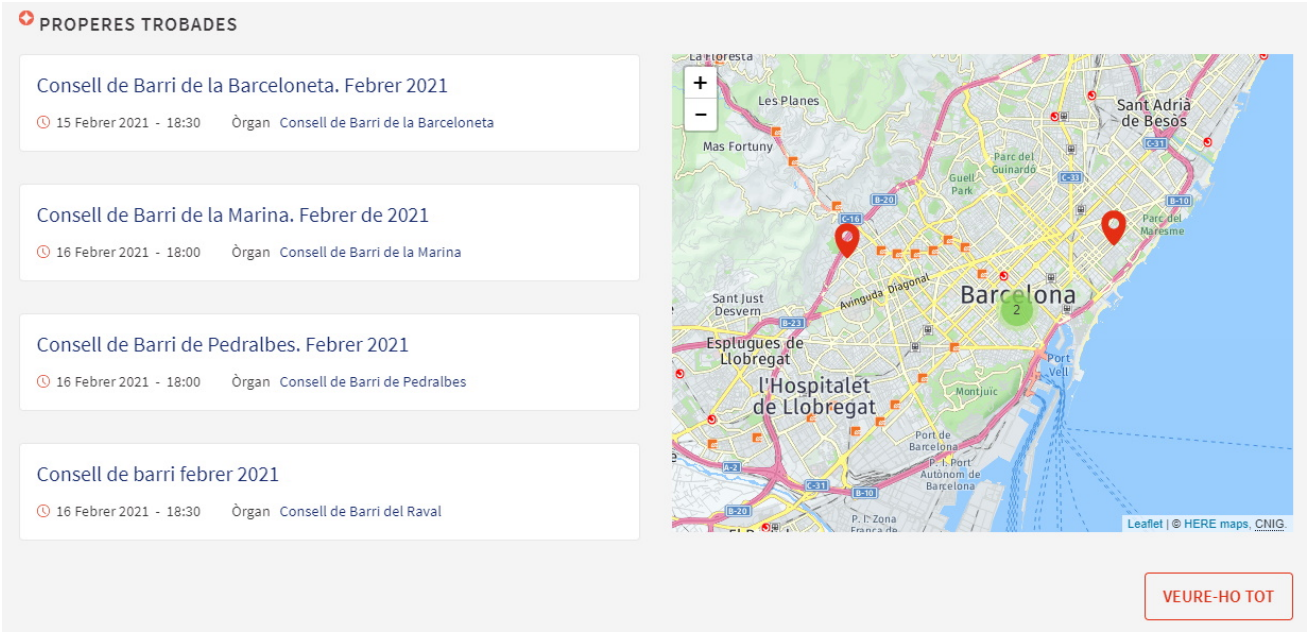

Figure 4. Decidim Barcelona[8]

The Decidim Barcelona platform enables citizens to directly participate in Barcelona's district councils by speaking or voting online (figure 4). Just like in New York, the authorities are seeking democratic legitimation for their actions. Another design that is deserving special interest is the Sensor Civico smart city project for the Italian city of Bolzano that runs on the OpenPA platform. People can register on the platform and mark problems that they've encountered on a digital map of the city. Whenever a problem is highlighted on the map, a city official gets tasked to deal with it, while government supervisors get involved with the problem-solving processes. Government representatives respond to public comments, explaining how to go about resolving various issues (see figure 5). In Russia, Moscow has the Active Citizen project, while the cities and towns of the Moscow Region run the Dobrodel (Good Deeds) platform.

[7] Smith A., Prieto Martín P. Going Beyond the Smart City? Implementing Technopolitical Platforms for Urban Democracy in Madrid and Barcelona //Journal of Urban Technology. 2020. Aug. DOI: 10.1080/10630732.2020.1786337. Available at: https://www.tandfonline.com/doi/full/10.1080/10630732.2020.1786337 (Accessed: 10.02.2021).

[8] Decidim.Barcelona. Available at: https://www.decidim.barcelona/ (Accessed: 14.02.2021).

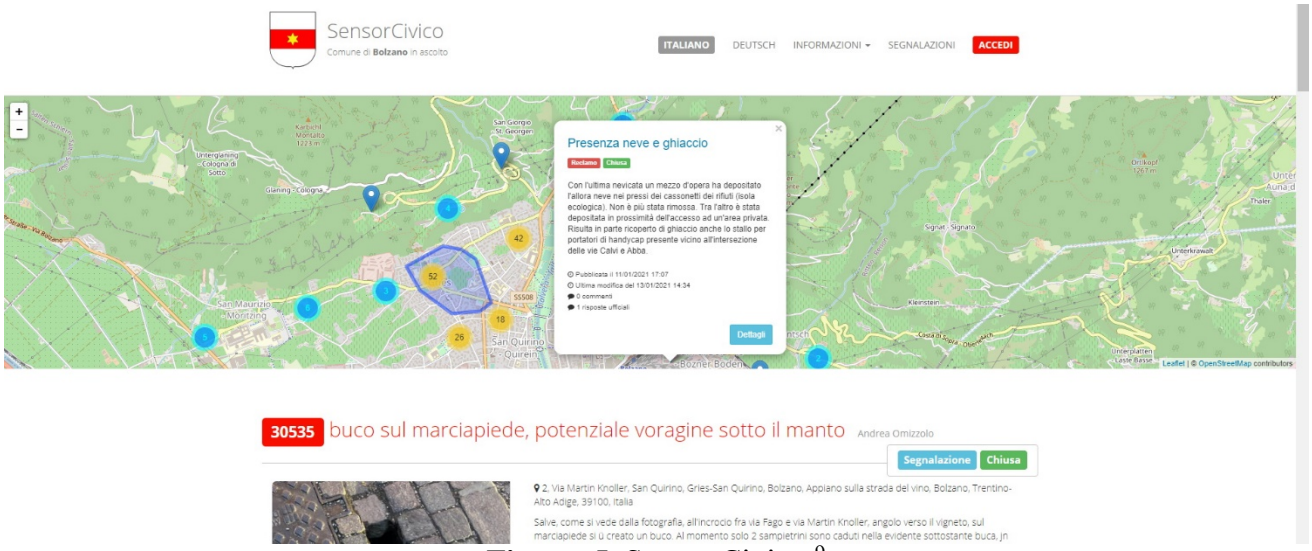

Figure. 5. Sensor Civico [9]

But these digital platforms can only evolve into a fully-fledged working mechanism if the public themselves become media literate and learn how to get involved in politics through digital technologies. Political education programs must take into account the risks of digital and social inequality in modern megacities. No smart citizens will emerge without comprehensive political education programs; all that we'll be left with will be smart elites. Programs of this sort should assume compatibility between, for instance, the broad range of recreational and entertainment activities that youths engage in and political participation in the affairs of the city [21]. Unless young people receive a political education in schools and universities, the digital democracy of the smart city is mostly like to eventually get replaced by less democratic practices. The danger that lies in ignoring this problem can be seen in the findings of smart city surveys in Bristol, Glasgow, Milton Keynes, London, Peterborough, and Manchester. Despite the fact that all these cities offer a slew of digital platforms and solutions to their residents, researchers have found a common correlation: the civil and political activity of smart citizens tends not to last as long as their entrepreneurial activity. It may very well be the case that this has to do with the fundamental global process of the transformation of citizens into consumers of the city government's services. What that means is that political transparency alone is no longer enough for the development of a full-fledged modern digital democracy. The researchers also hypothesize that political and civic activities should be modeled more around the consumer model and borrow liberally from business technologies [13]. Analysis of the specialized literature demonstrates that in most modern political regimes (liberal and digital democracies as well as in closed [hegemonic] and electoral autocracies) smart cities are no more than just isolated pockets of efficiency, limited experiments under the patronage of political leaders (for example, the open-source project MERR PJESE [Tirana] has been pretty much abandoned since 2019, there haven't been any discussions or votes on the platform recently). The Italian project DecidiTorino has been completely closed down.

It would appear that in practice digital corporations, unlike political parties and political leaders, actively penetrate civil life and use digital technologies and platforms to mobilize their users. One example of such intervention on the part of digital platforms in the democratic process would be uberization and Uber-participation. Uber has created the Uber Action platform that allowed people to respond to instances of lobbying and specific legislative acts. Uber made liberal use of the mechanism of civil petitions, successfully creating the impression that its goals had mass public support. S. Ranchordas believes that the creation of such digital agoras touches upon an important problem of democratic legitimacy. That is, when specific interest groups comprised of people who have never been elected and thus cannot be held responsible in the same manner as elected representatives try to influence the government through the mechanism of civil petitions [29]. On the

[9] Sensor Civico. Available at: https://sensor.comune.bolzano.it/sensor/posts (Accessed: 14.02.2021).

other hand, S. Ranchordas acknowledges that, despite its flaws, this sort of do-it-yourself democracy can call the government's attention to the real problems that society is facing.

Some papers raise the issue of the creation of the so-called democratic interface, organizations, and communication processes that can get the residents of a smart city involved with the institutions of collective self-governance. One problem with this kind of democratic interface is the difficulty in developing an adequate digital platform that most people would be satisfied with in terms of its advisory procedures, standards, and values [10]. Another difficult problem is how to build a government using a digital platform on the basis of joint actions of the citizenry. Open-source software is the core of digital democracy. The required minimum. Access to the source code allows people to understand the mechanism of algorithmic authority, and, most importantly, it allows them to take part in creating it. People should be able to study the source code, modify it, identify functions that are unacceptable if democratic rights and freedoms are to be preserved. However, it should be appreciated that, on their own, technology policy, political education, and democratic interfaces can't create a digital democracy that would permeate the entire community of a smart city and that would also be conducive to the regular rotation of members of the government and to improving the quality of government services. Special mention should be made of the remark of the Russian political scientist V. Gel'man that a distinction should be made between policy (the development and implementation of a political course of the government) and politics (the competition of various actors to gain and hold on to political power) [17]. A smart city is, for the time being, an experimental platform, a fairly constrained subset of a real city, in which politics doesn't always help ensure the longevity of policy or the consistency of the technological projects aimed at reforming democracy. Digitization does not cancel the historical and political context of a specific country. For this reason, on the ground, the concept of the smart city can often result in bad governance rather than good governance. Digital democracy and its ultimate fate depend on a whole host of factors: the interplay between policy and politics, the political business cycles of various political regimes, the political culture of smart citizens and city governments, the configuration of various interest groups as well as the activities of digital corporations.

What are the risks of Digital Totalitarianism in a Smart City?

A study of the technologies and problems of smart cities found that there are a number of independent reasons that are holding back the adoption of high-quality digital democracy at scale. A Google Trends analysis found that the global interest in totalitarianism also follows an undulating pattern (see figure 6). It may very well be the result of periodic violations of the democratic rights and freedoms of citizens through new technologies by both governments and digital corporations.

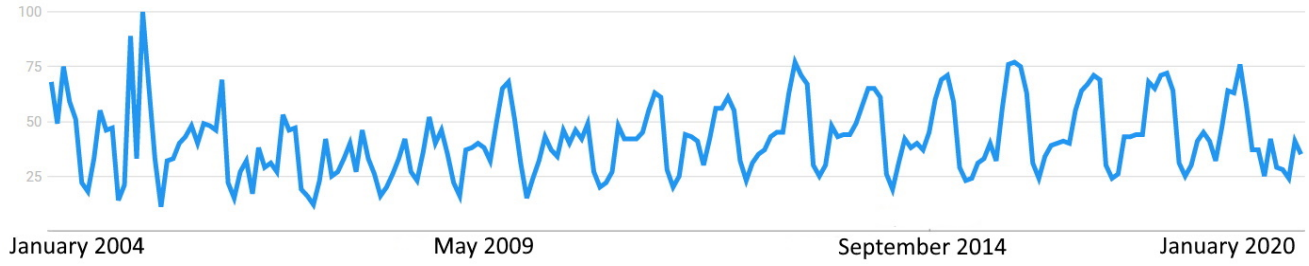

Figure. 6. Global interest in the word totalitarianism since 2004

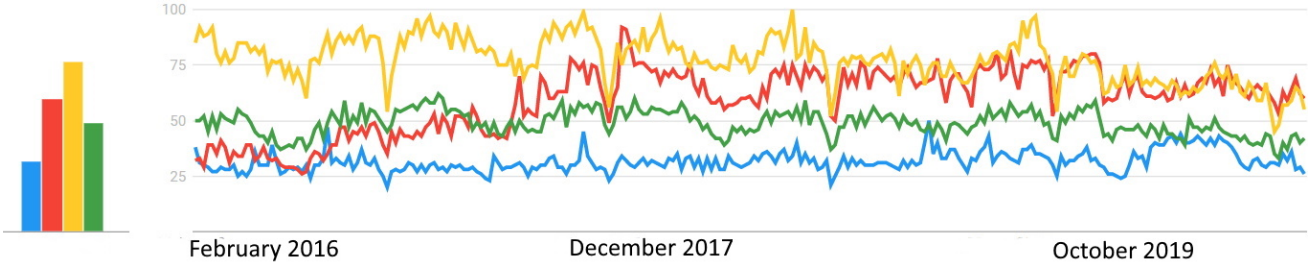

Figure. 7. Search queries for "Smart City" (blue), "Artificial Intelligence" (red), "Big Data"(yellow), and "Algorithms" (green) over the past five years

Internet users have been most interested in Big Data and Artificial Intelligence (figure 7). These results allow us to tentatively hypothesize that the risks of the emergence of digital totalitarianism on the basis of smart cities will primarily be related to these technologies. These risks are generally regarded as being related to the emergent rationalization of digital technologies, formalization, and algorithmization of people's day-to-day lives and attempts to control their political behavior. The state is now facing a dangerous dilemma: should the privacy of citizens be protected, or should the minutiae of their digital traces be closely analyzed to study and adjust their activities [28] to ensure public safety and the legitimacy of the regime. Technocracy and techno-policy based on the principles of rational algorithmic governance remind one of Plato's Statesman dialog in which he posited that the correct form of governance is one in which knowledgeable, intellectual rulers govern people on the basis of knowledge and fairness. Having revised Bentham's notion of the Panopticon, M. Foucault linked it to his idea of a disciplinary authority organized on the principles of technology. M. Foucault noted that the modern citizen suspects they are constantly being watched, and so they're constantly moderating their own behavior [15]. Following this logic, a smart city in which everyone is constantly watching everyone else can create a situation of uncertainty: even the smartest citizen can't know for sure whether their activities will be made public or not because of the ever-increasing complexity of the various digital applications and algorithms. And it is this sort of uncertainty of transparency that according to Foucault becomes the foundation of how modern authority functions.

T. Bucher revises the concept of disciplinary authority by considering the closed algorithms used by Facebook as an example (this analysis can also apply to the digital systems running smart cities). Bucher writes that disciplinary authority works in social media not on the principle of the threat of exposure but rather on the principle of the threat of obscurity for participants.[10] Facebook is constantly growing, so as people advertise their lives in their newsfeed during the COVID-19 lockdown, what they worry about is that their posts will go unnoticed, that nobody will like them or comment on them, nobody will share them. In other words, when it comes to digital technologies with closed algorithms, visibility and exposure become an award for good behavior rather than a punishment for misbehaving (for example, the EdgeRank ranking algorithm keeps some actions of Facebook users hidden). Nonetheless, Foucault's basic contention (naturally, revised for the modern age) remains as relevant as ever: digital technologies are pushing political authority toward becoming more algorithmic, governments are increasingly shedding their functions, making it the responsibility of the citizens to watch their own behavior. Algorithms train people in how they are supposed to behave, and which behaviors are to be avoided on the digital platform. If someone fails to behave, the algorithms immediately mete out punishment. The essence of digital totalitarianism can be seen not only in the mechanism of closed-source code but also in the manner in which digital corporations are forcing their uncontrolled policies on people with no right to appeal. One recent example and proof of digital totalitarianism was the across-the-board ban of Donald Trump on all major social media platforms (Twitter, Instagram, Facebook, Twitch, Reddit, YouTube, Discord, and Snapchat) after his supporters stormed and seized the US Capitol in January 2021 because they believed the presidential election had been stolen.[11] TikTok and Pinterest restricted the use of hashtags supporting Trump. Amazon, Apple, Shopify, and some other digital corporations also clamped down on Trump supporters.

Digital totalitarianism would have been impossible without what K. Yung referred to as the automation of western society. Later, it was noted that, while in the 1970s Europeans generally regarded collective confidentiality as an important issue, in the 2000s they were far more concerned with the confidentiality of private data. This shift in concerns probably reflects the evolution in

[10] Bucher T. Want to be on top? Algorithmic power and the threat of invisibility on Facebook //New Media & Society. 2012. Vol. 14 Iss.7. P. 1164-1180. DOI:10.1177/1461444812440159. Available at: https://journals.sagepub.com/doi/10.1177/1461444812440159 (Accessed: 14.02.2021).

[11] Allyn B., Keith T. Twitter Permanently Suspends Trump, Citing 'Risk Of Further Incitement Of Violence'. Available at: https://www.npr.org/2021/01/08/954760928/twitter-bans-president-trump-citing-risk-of-further-incitement-of-violence (Accessed: 14.02.2021).

collective identities toward greater individualism, a shift that, to a large extent, has been encouraged by digital corporations in their bid to transform citizens into online consumers. In this context, it is noteworthy that the Amsterdam Smart City project, just like the aforementioned smart city projects in British cities, focused more on rewarding entrepreneurship rather than political participation. Surveys of the residents of Amsterdam found that for them a smart city is an unknown territory of hypervisibility and risks to data anonymity. Some respondents accepted the rules of the game, agreeing to accept cookies in order to use the smart city's services. The problem is that even residents of the city don't understand how these data are being collected and to what end [20]. The lack of such knowledge reduces trust in the government's technology policy and can kick off the process of delegitimization.

Surveys conducted in China reveal an interesting picture regarding China's Social Credit System (SCS). The surveys prove that the social credit system is trusted the most by men with a higher education and an above-average income [24]. The reason is probably that this category of the population is the most adept at using digital technologies and is more open to the technology policy of smart cities. The Social Credit System seeks to legitimize China's political authority; however, it's being rolled out by digital corporations such as Alibaba, SenseTime, Tencent, and Baidu. Western authors sometimes analyze China's SCS through Michel Foucault's system of dispositives that create the experience and practices of an organization. In the opinion of H. K. Hansen and R. Weiskopf, the Chinese government controls the political behavior of the population through the dispositives of care, law, security, and discipline, introducing blacklists of unreliable citizens, algorithms that prescribe specific behavioral patterns, a system of social points, rewards, and red lists for trustworthy citizens. However, even critics of SCS recognize that the claims that the system is too centralized are in fact a myth [19]. More skeptically-minded authors don't tend to regard China's SCS as a model of digital totalitarianism. First of all, the social credit system is, to a large extent, aligned with China's existing political culture and is reflective of the way in which the locals understand what a fair political regime is supposed to be all about. Second, Chinese authorities also use the exact same technocratic tools of ranking and quantitative assessment of citizens as those used by the governments of the western smart cities. For example, just like in Italy and France, China is rolling out CCTV and facial recognition systems (in Fuzhou, Jinan, Shenzhen).

Besides, western nations are also introducing various social credit systems. Thus, in the United States, Affirm analyzes people's social media profiles to assess their creditworthiness and Australia's Lodex uses similar technologies. The FICO system in the US analyzes people's data, assigns scores to individuals, and then determines whether or not to issue mortgages to them. Schufa Corporation intermediates in the running of German smart cities [36]. Schufa analyzes various geographical factors (the number of neighbors with a low credit rating, residency in low rent areas, etc.) when considering whether to reduce a person's credit rating. The western digital corporations Uber, Airbnb, OpenTable, and others have long been using two-way rating systems, which individuals and companies can use to rate each other. There are even fears that such shifts in the development of digital ratings may bring about the emergence of new forms of socioeconomic inequality in western societies and a crisis of Western Civilization.

The aggressive actions by digital corporations and political regimes are not enough to qualify as digital totalitarianism. Things are a lot more complicated: an important prerequisite for digital totalitarianism in smart cities is the disappearance of the boundaries between the public and the private as well as between public property and private property. There, the so-called hybrid pseudostate urban territories emerge, with opaque rules and a culture of secrecy. Thus, digital totalitarianism manifests in the rather controversial phenomenon of disciplinary authority as defined by M. Foucault. On the one hand, digital corporations can influence the citizens of smart cities by punishing them for violating their arbitrary rules of discourse by means of reducing the visibility of their online activities (or by completely "canceling" them as in the case of Trump). On the other hand, citizens are wary of all the risks of their digital data getting leaked and are apprehensive of a total loss of privacy. Therefore, it makes sense to expand M. Foucault's concept of disciplinary authority [15] with D. Beer's algorithmic authority concept [9]: there is no doubt that disciplinary

political authority does exist, but we need to understand which political actors use algorithms and to what ends: whether they pursuing some private gain or they exercise algorithmic authority for the common good. For example, as South Korea was hit by the COVID-19 pandemic, the local authorities in the smart cities both tracked patients through CCTV systems, mobile phones, and debit cards and also regularly supplied the public with major updates on the recent developments to avoid the spread of fake news and false information [32]. As a result of this two-tiered strategy, the Korean authorities managed to legitimize their own actions, preserve trust in the health-care authorities, and prevent both the panic buying of supplies in stores and major political unrest.

It should be stressed that the emergence of digital totalitarianism on the basis of a network of smart cities is only possible under a specific configuration of policy and politics. Digital corporations and political elites should closely coordinate their actions to impose a system of total digital control. Even in countries far removed from the Western ideal of liberal democracy, digital totalitarianism will not arise if the main actors—digital corporations and the governing authorities—do not join forces on the long-term development of an all-pervasive system of digital control. Frequent changes of government, parliamentary elections, competition between digital corporations, and power struggles between political leaders and interest groups all result in a major imbalance between Policy and Politics, and keep digital totalitarianism within experimental «pockets efficiency».

Discussion

So is digital democracy even possible? Our analysis of existing cases of smart cities in various countries has shown that the achievements of modern science really do allow the use of the so-called techno-policy to improve the feedback loop between the public and the government. The emergence of digital democracy is also evinced by such facts as the self-organization of urban residents through new nonconventional forms of political participation (flash mobs, political performances, and other network actions), more active use of online petitions, the wide adoption of special digital platforms that urban residents can use to discuss problems of their cities, monitor the action of authorities, report problems, and offer solutions. In countries with liberal democratic regimes where governments already cannot simply ignore such forms of civil self-organization over information-communications systems, we're seeing government officials being tasked with resolving issues that the public has found and reported online.

However, it must be borne in mind that the service paradigm must not replace pervasive democracy. To develop new democratic forms, it is not enough to simply monitor urban problems. Improving parks and public spaces, cleaning up the streets, improving traffic flows, energy efficiency, and environmental protection: all are important issues for urban residents. However, digital democracy, first and foremost, assumes the equal participation of all the residents of a smart city in the development, discussion, and adoption of political resolutions. If smart citizens don't get involved with this process, digital democracy is reduced to a very efficient but very narrow service offered by the city government. It is also necessary to take into account the fact that the services that smart cities offer to their citizens in today's postmodern world of transforming state institutions [3, 5] are increasingly being contracted out to private digital corporations. Studies show that big business has a lot more levers to influence a city's policy than other actors [7]. As a result, there is a danger that the boundaries between the public and private sectors may disappear entirely, and that this may spell the end of any and all forms of democracy, including digital. Meanwhile, the new freedoms for citizens and the transparency of information lauded in smart city projects never, in fact, get implemented, and access to information remains very asymmetric.

As is aptly noted by Australian researcher S. McQuire, the publicity of the public space is not a gift granted to urban residents in perpetuity. It is something that can be taken away from them. Transparency is created through the political rather than the consumer actions of the citizenry [25]. And citizens must defend their right to the public space on an on-going basis, both from the state and from major digital corporations. But it's getting harder and harder to defend this right: the political authority and power of digital corporations are becoming more and more algorithmic in nature. This can be seen in their close cooperation on the development and introduction of various rankings,

indexes, and other forms of digital control and monitoring. Our analysis has shown that smart cities depend on investments and still generally focus on supporting entrepreneurship and close symbiotic relationships between government and digital corporations, which act as the new intermediaries between the state and the citizenry. Meanwhile, there are not really all that many projects aimed at protecting the political data of citizens during electoral processes, as can be seen in the latest developments in blockchain research [1].

What kind of risks of digital totalitarianism can emerge in a smart city? Our analysis identified the basic factors that can prevent digital totalitarianism. The top such factor is the imbalance between policy and politics and the lack of a unified, centralized, digital smart-city architecture. But this does not at all mean that digital totalitarianism is entirely impossible in the future. The German researcher L. Ulbricht points out that the technique of demos scraping poses some serious risks for democracy. Demos scraping is the automated collection of data about citizens that are then used for political and business purposes. Demos scraping is being increasingly used by political parties and leaders to forecast election results. Urban police units use this technology to estimate the level of aggression of individuals by monitoring their social media activity. Digital corporations try to use this method to predict consumer behavior. Ulbricht believes that to employ demos scraping is to regard people first and foremost as consumers rather than politically active rational citizens. As such, data collected in this manner will not prompt the elites to create new platforms for active political participation [34]. Demos scraping pushes people into the mold of consumerism, making them forget their political responsibilities. Furthermore, demos scraping, psychological profiling, and microtargeting are further increasing the distance between the political elite and the ordinary citizenry. Therein lies the greatest risk of digital totalitarianism: the total depoliticization of the public and the transformation of the citizens into consumers. A total lack of control over the actions of the monopolistic digital companies that effectively now control the right of communication also remains a major problem. The international institutions that exist today [4] are, for the moment, unable to cope with these threats.

As aptly noted by McQuire, urban spaces are rapidly being digitized and turned into data stored in special operating archives. Any digital platforms, services, and applications are rapidly being turned into bait for people who voluntarily give up their personal data to such archives in exchange for what is pitched to them as supposedly free services and applications. McQuire believes this process is transforming the very social nature of the city. Such platforms as Google Street View are now amassing huge amounts of data about cities. This postmodern model moves some authority from the state to the digital corporation over which, unlike the former, ordinary citizens have no control whatsoever. McQuire is of the opinion that, in order to develop digital democracy, we need to develop public and not just commercial urban spaces, creating archives of participation and digital annotation for the smart city in order to promote genuine political civil participation. He proposes a very interesting model for getting people engaged in political activity through art projects that can teach the residents of smart cities how to take political action through digital platforms.

Conclusions

In summary, it's important to note that digital democracy is only possible based on the principles of open-source code, while digital totalitarianism, by contrast, hinges upon closed-source. Digital democracy may entail the serious politicization of society, resolving the problem of the regular rotation and effectiveness of political power through the use of information and communication technologies. Meanwhile, digital totalitarianism is, in reality, more associated with the dictatorship of major digital corporations that are even capable of violating state sovereignty. Digital totalitarianism turns citizens into consumers and totally depoliticizes society while at the same time fossilizing digital inequality in a manner that benefits a tiny elite. This trend is exacerbated by the ratchet effect in which social and political transformation lags behind technological change, becoming heavily dependent on digital technologies [6]. The dialectic of digital democracy and digital totalitarianism can be resolved by determining specifically which actor the digital algorithms of the smart city will belong to. This does not mean that, in order to exercise their democratic freedoms, every citizen must literally learn to code (even though, this cannot be completely ruled out either). However, a smart

city citizen must understand how algorithmic power works and take part in its creation. The economic development of society has already brought about a transition from the social reality of the past toward a new sociotechnological reality (a phygital world), meaning that citizens, the state, political regimes, parties, Policy, and Politics can no longer be regarded in isolation from technology and technological policies. However, society has not yet brought forth the sociopolitical forces (whether networked parties, movements, or interest groups is irrelevant) that could consolidate disparate groups, create a clear message of struggle against digital inequality, build popular open-source digital platforms that don't rely on corporations and offer regular and free training in modern practices of public policy to any and all citizens. It is only this kind of qualitative breakthrough that can prevent society from slipping toward an uncontested model of digital totalitarianism.

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