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ARTICLE

What is technopolitics? A conceptual schema for understanding politics in the digital age

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Abstract

In this article we seek to revisit what the term 'technopolitical' means for democratic politics in our age. We begin by tracing how the term was used and then transformed through various and conflicting adaptations of ICTs (Information and Communication Technologies) in governmental and civil organizations and grassroots movements. Two main streams can be distinguished in academic literature: studies about internet-enhanced politics (labelled as e-government) and politics 2.0 that imply the facilitation of existing practices such as e-voting, e-campaigning and e-petitioning. The second stream of the internet-enabled

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perspective builds on the idea that ICTs are essential for the organization of transformative, contentious politics, citizen participation and deliberative processes. Under a range of labels, studies have often used ideas of the technopolitical in an undefined or underspecified manner for describing the influence of digital technologies on their scope of investigation. After critically reviewing and categorizing the main concepts used in the literature to describe ICT-based political performances, we construct a conceptual model of technopolitics oriented at two contra-rotating developments: Centralization vs. Decentralization. Within a schema consisting of the five dimensions of *context, scale and direction, purpose, synchronization* and *actors* we will clarify these developments and structure informal and formal ways of political practices. We explain the dimensions using real-world examples to illustrate the unique characteristics of each technopolitical action field and the power dynamics that influence them.

Keywords:

technopolitics, e-democracy, politics 2.0, ICT and politics, e-government, e-participation

Topic

political science, political theory, e-democracy

¿Qué es la tecnopolítica? Esquema conceptual para entender la política en la era digital

Resumen

En este artículo queremos reconsiderar el término “tecnopolítica” y ver qué significa en la política democrática de nuestros tiempos. Comenzamos indagando en el uso inicial del término y cómo se ha ido transformando mediante las distintas y contradictorias adaptaciones de las TIC (Tecnologías de la Información y la Comunicación) en los órganos de gobierno, las organizaciones civiles y los movimientos populares. En la bibliografía académica se pueden apreciar dos corrientes principales. Por un lado, están los estudios sobre la política mejorada gracias a Internet (conocida como “e-gobierno”) y la política 2.0, que apuntan a la facilitación de prácticas existentes como la votación electrónica y las campañas y peticiones en Internet. Y, por otro lado, la segunda corriente de la perspectiva de la influencia de Internet se sustenta en la idea de que las TIC son esenciales para la organización de una política transformadora y contenciosa, la participación ciudadana y los procesos deliberativos. Los estudios han usado a menudo, con una u otra etiqueta, ideas de la tecnopolítica en términos indefinidos o imprecisos para describir la influencia de las tecnologías digitales en su ámbito de investigación. Tras una labor crítica de revisión y clasificación de los principales conceptos empleados en la bibliografía para describir actuaciones políticas basadas en las TIC, interpretamos un modelo conceptual de tecnopolítica orientado a dos desarrollos contrarrotatorios: Centralización vs. descentralización. En un esquema formado por las cinco dimensiones contexto, escala y dirección, propósito, sincronización y actores, aclararemos estos desarrollos y estructuraremos los modos formales e informales de las prácticas políticas. Explicamos las dimensiones utilizando ejemplos reales para ilustrar las características únicas de cada campo de acción tecnopolítica y la dinámica de poderes que influyen en ellos.

Palabras clave

tecnopolítica, democracia digital, política 2.0, TIC y política, e-gobierno, e-participación

Tema

ciencia política, teoría política, democracia digital

1. Introduction: Internet and Politics

The features of shareability (Shirky, 2008) since the beginning of the 21st century followed by the massive influx of mobile broadband connectivity and social networking sites in society around 2008 together triggered the innovative power for constructing new communicative and organizational tools. New software, web platforms and mobile applications accelerated and facilitated the processes necessary for idea collection, discussion, decision-making and voting as well as media and content creation.

These inventions not only make individual input and participation easily traceable but also store relevant data, making information searchable and reproducible. A culture of free software and free culture (Lessig, 1999, 2004), open government (O'Reilly, 2005; Noveck, 2009; The White House, 2009) and democratic innovation have emerged since then to sustain the development of free tools for communication and organization around the principles of commons-based peer production (Benkler, 2006). Many people are following this approach and networking with other groups in order to equip themselves with free and effective tools.

Against this trend, we see the persistence of the rather traditional approach that treats communication and information more exclusively within a small network of people in a vertical, top-down manner (Peña-López, 2011a). Significant information is collected into a centre with a view of scarcity and shared with each actor according to their authority, following the rules of secrecy.

The Internet is already becoming a site of contention between these two communicational paradigms: freedom of information vs. secrecy and surveillance (Rumold, 2015). When we compare this approach with the role of secrecy and surveillance in the political establishment in the post 9/11 period, we hypothesize the arrival of a period in which the two organizational models collide.

The Internet has always been heralded as a great opportunity to enhance democracy (Barlow, 1996; Lebkowsky, 1997). But three decades since its inception, the Internet only proved to be a mirror of society and politics. Despite its potential for facilitated communication, deliberation and organization, internet-enhanced politics did not yield sufficient democratic

transformation. Today we observe that online tools for communication and organization, when combined with legal and political tools, can provide technopolitical strategies to fix the broken parts of democracy. There is a substantial body of literature that states that digital tools foster a new ethic (Himanen, 2003) that quickly translates into new kinds of operating. The possibilities of increasing the granularity of tasks contributes to the decentralization of management and decision-making (Benkler, 2006). These are particularly reflected within the discourse around free and open source software against proprietary software (Raymond, 1999; Stallman, 2002; Benkler, 2002; Castells, 2012).

In this article we would like to offer a conceptual approach to understand the major political forces shaping the future of the Internet and democratic politics. This approach is not very novel, but the context and the compilation of contributions makes it highly relevant since we believe that there is an unprecedented level of contingency in politics (caused by the communicative effects of the Internet) that needs to be captured. We want to introduce a notion of technopolitics that is based on two prevalent approaches that differ on the role of communication and on the value of information: i) the centralized approach and ii) the distributed approach. In the centralized approach, technopolitical practices are applied top-down, in which information is exclusive to decision-makers. This refers to the ways in which the state or the government increases its power in new technologies (Mitchell, 2002; Rodotà, 1997) as in the initial use of web-based technologies for traditional politics, named e-government or e-politics (Dunleavy and Margetts, 2006; Livermore, 2011). In the distributed approach, technopolitical practices are applied bottom-up, in which information is co-produced and shared by the individual through overlapping networks as in more transformative use of ICTs for allegedly new ways of doing politics - what we refer to as democratic technopolitics.

The former makes use of technologies for increasing efficiency and efficacy in the established modes of governance and government within the representative paradigm of democracy and embraces practices such as e-voting, e-campaigning and e-petitioning to facilitate their operations (Reddick, 2010, Piaggese *et al*, 2010). This is reflected in the notion of e-government meaning "all processes of information processing, communication and transaction that pertain to the tasks of the government (the

political and public administration) and that are realized by a particular application of ICT" (van Dijk, 2006, p. 104). The latter - technopolitics - amplifies this basic understanding by looking at the subversive use of technologies combined with legal and political tools. New political organizations use online tools and platforms in order to facilitate and accelerate the necessary processes - such as idea creation, prioritization of issues, content and media creation - when engaging in formal politics. Independent actors can participate in practices and processes with the help of ICTs, such as petitions, campaigning and party formation.

Departing from these approaches, we want to argue that representative democracies are being heavily challenged by new technopolitical practices. From that we hypothesize that we are in the middle of a shift towards a technopolitical age, a political operation mode within the unfolding of the network society enabled through mass self-communication (Castells, 2007). As we will trace throughout the article, in contrast to the concepts of e-democracy, e-governance etc., technopolitics allows us to translate the complexity surrounding the integration of new technologies into the power dynamics among political actors and their respective contestations and negotiations between centralization and decentralization.

2. 'Technopolitics' in the academic literature

The debate about the decentralizing and centralizing tendencies of technologies in general, and digital technologies in particular, has a long-standing tradition in organization studies (Bloomfield and Coombs, 1992). Combining the development of both - on the one hand the "displacement of some forms of decision to a new and more peripheral location" and on the other the shift towards information and communication monitoring that results in "a new sense of centralization of power and control" (*ibid.*, p. 460) - is challenging. When reviewing the appearance of the term "technopolitics", a wide range of understandings and defenders of both sides, the centralized and decentralized, can be found that is derived from the complexity of the issue under investigation. In its basic form, the term "emerged in the history of technology tradition to account for the ability of competing actors to envision and enact political goals through the support of technical artefacts" (Gagliardone, 2014, p. 3).

Two of the first occurrences of the term are both from 1997. In 'TechnoPolitics' Jon Lebkowsky refers to "broad-based coalitions formed ad hoc with minimal partisan wrangling and little reference to any particular agenda other than constitutional integrity" (Lebkowski, 1997), or in other words to highly distributed decision-making with minor organizational infrastructure. On the contrary, Stephano Rodotà (1997) sees a powerful potential for technopolitics, but most often as improvements of the traditional ways of doing politics. Indeed, he argues for the concurrence of more actors in the political agora, especially citizens, to perform the usual tasks: transparency, accountability, more or less direct participation and decision-making, higher degrees of deliberation, etc. The main democratic structures, however, remain mostly unchanged.

Edwards and Hecht (2010) define technopolitics as "hybrids of technical systems and political practices that produce new forms of power and agency"; that is, the entanglement of technology with politics takes place on narratives of national and social identity with concrete policy positions and material outcomes. Their approach is particularly comprehensive in terms of understanding technology and politics as a dynamic and sometimes co-constitutive process. In their view, the entanglement of technology with politics never produces singular responses and it always presumes the multiplicity of positions when it comes to using a technology for political purposes. Hence they place power at the core of analysis in understanding technopolitics. Although Edwards and Hecht do not argue the primacy of technology over politics, they acknowledge the constitutive role that technology plays in terms of political power. Given the multiplicity of positions, this means that technology can empower actors in various degrees or empower a single actor against others. Therefore, framing becomes an important part of understanding the various positions among contentious actors and 'contesting claims' involved in policy choices and their political impacts. In other words, an actor's positions and motivations play an important role in constituting and transforming political power. As they state, "these technologies are not, in and of themselves, technopolitics. Rather, the practice of using them in political processes and/or toward political aims constitutes technopolitics" (Edwards and Hecht, 2010, p.256-7).

Following a similar approach, Hughes (2006) expands the scope of technopolitics by focusing on innovations in nanobiotechnologies. He observes that the ethical issues emerging

from the various uses of such technologies generate political controversies. Arguing that “these coming technopolitical conflicts will be fought over the development, regulation, and accessibility of human enhancement technologies and will bring to the table fundamentally different conceptions of citizenship, rights, and the polity”, he points out that new technologies have shifted the technopolitical terrain prevalent in the 20th century between technoconservatives and technoproggressives.

Based on Winner’s (1980) proposition of artefacts as having inherent politics, Hughes treats some technologies as empowering tools while others are perceived as the opposite. The selection and appropriation of different technologies that cut across the existing political lines between left and right leads to the emergence of new positions such as technolibertarians and technodemocrats. These actors endorse the integration of new technologies in human life while each have conflicting positions towards the role that political regulation should play in this process.

While Hecht isolates a specific technology in order to see its role in constituting political power, Hughes proposes to employ technological innovations based on their intended role in politics. This creates both an advantage and a problem. Hughes’s understanding of technopolitics puts great emphasis on the design process involved in the innovation and implementation of new technologies as well as the political repercussions. Similarly, Edwards and Hecht maintain that “the material effectiveness of technologies can affect their political effectiveness”, though they do not go into great depth in the study of the design process involved in the use of new technologies. However, Hughes’ framework risks falling into political determinism, as if actors understand the entire logic of such technologies with a fixed political position. In that respect, Edwards and Hecht provide a much more dynamic understanding of the design process in which political positions are shaped along the way.

Douglas Kellner (2001) understands technopolitics as a strategic way of citizen empowerment. He notes some resistance in using ICTs. In particular, the Internet and ICTs are important for the democratic project as they open “new terrains of political struggle for voices and groups excluded from the mainstream media and thus increase potential for resistance and intervention by oppositional groups” (p. 23). Following Hecht, Kellner treats technology as an independent agent that can be strategically appropriated

for different political purposes by conflicting actors. Inherent in his writing is a normative and strategic stance towards the appropriation of ICTs for democratic purposes. Technopolitics is “not an end in and of itself”, he states, but rather it should become “an arm of struggle” for democratic revolutions (Kellner, 2001).

Recent attempts to rework the definition of technopolitics make good cases to expand such a perspective. For Rasmussen (2007), it is impossible to make clear distinctions between technology and politics, not because they are inherently entangled but because politics uses technical standards (as more effective than laws) and because technical expertise has started to acquire a political power that was not intended. According to him, since its inception the Internet has always been a contested terrain among various actors, in particular due to its open architecture. Similar to Kellner, he highlights how the design principles of the Internet, such as decentralized networks and open processes, inherently ushers in new political expressions and motivations. Nevertheless, Rasmussen reminds us that the history of the Internet as a terrain of technopolitical controversies “reveals prolonged tension - in fact almost open controversy - between the closed and the open” (Rasmussen, 2007, p. 2). In particular, he highlights how the issues of regulation are contested and negotiated between these two approaches.

It is important to note that he understands technopolitics as a double-movement between technological innovations and political interventions. In explaining the role of ICTs in the last decade, he proposes that we have entered another phase of the Internet’s history: “increasingly advanced technical solutions that bring new terminals and platforms and a greater awareness of what the Net represents in a social sense, but also a closer legal and political intervention in the Net” by IT bureaucrats. We acknowledge his suggestion that the Internet represents a space of openness and at the same time “it creates barriers in the form of regulation by the government, more restrictive rights” (Rasmussen, 2007, p. 2).

Another valuable attempt to employ technopolitics is Gagliadore’s work on the development of ICTs in Ethiopia (2014). Focusing on government-led projects, he analyses how political and technical forces interact and negotiate in particularly authoritarian regimes. His study illustrates how the same technology can be appropriated in opposite ways according to different political motivations. He observes that

despite the donors' (international assistance organizations) demands for openness and democratization in using these ICTs, the Ethiopian government has appropriated them to foster their state and nation building process, while marginalizing other uses of these ICTs. This is important in understanding how ICTs used for democratic technopolitics can be appropriated in a form of surveillance such as in the case of the National Security Agency (NSA).

In a similar manner, Toret *et al.* (2013) understand technopolitics as "the tactical and strategic use of digital tools for organization, communication, and collective action. It is the ability of connected communities [...] to create and change social movements" (p. 3). For a lot of authors, the 15M Movement in Spain has provided the blueprint for a technopolitical citizen movement that goes beyond the mere collective interest articulation as typical of social movements from either right or left but rather is a citizen mobilization characterized by a joint "perception of its [citizenship's] loss" (Gerbaudo, 2017, p. 42)

These accounts show the ambiguity of technopolitical writings and highlight the need to provide a descriptive notion of technopolitics that encompasses both centralizing and decentralizing tendencies. This will be expanded on in the following sections alongside a number of categories.

3. A twofold understanding of technopolitics

From our discussion above, we can summarize that technopolitics assumes the primacy of technological change and the contingency it creates in terms of political power. It also concerns a specific period of transition in which technology and politics become entangled primarily due to the introduction of new tools for communication and organization. This affects both higher level politics, such as the connections between WikiLeaks and the Arab Spring, and lower level politics, such as the connective action and participation in the initiative for a new constitution in Iceland, the 15M Spanish Indignados Movement, Occupy Wall Street in the United States of America and in the Umbrella Movement in Hong-Kong. Accordingly, technopolitics in the digital age studies the co-constitutive relationship between political power and formal democratic processes and grassroots and extra-institutional movements, many of them not only mediated but enabled by ICTs.

We want to propose a conceptual framework that firstly provides an analysis of the context, namely the crisis of democracy in which technopolitical practices take place. Secondly, we want to look at the purpose of these practices since technopolitics also considers how the same technology can be appropriated and utilized for different political ambitions. Conflicting motivations, contestations and negotiations among different actors also call into question what are legitimate and illegitimate uses of the same technology. This perspective allows one to take into greater account the ways in which political power influences technological developments. And thirdly, technopolitics shifts attention from pre-determined political positions to a system of relationships in which technology is immersed. However, this does not reduce the significance of the individual, particularly in the digital age. Looking at the scale and the actors involved in technopolitical practices will support the analysis on how this immersion takes place.

After reviewing the two streams found in the literature, we perceive technopolitics as the embodiment of a twofold process: One is to expand pre-existing power structures by using new technologies within a centralized understanding. The other is the generation of forms of power by subverting ICTs into tools for contentious politics within a decentralized understanding. Unlike Hughes (2006), we do not aim to treat these actors as having predetermined political motivations. Instead, we propose to focus on the role that technology plays in constituting political oppositions and its impacts on the communication and organization patterns of these actors.

In the following sections we will gradually conceptualise technopolitics from its practices. We will begin with the context they are embedded in and then move to the purpose of technopolitical practices and the scale and direction of such practices. Finally, after analysing the actors engaging in technopolitics we will conclude by asking how all these pieces synchronize, especially when they happen in different spaces and/or at different levels.

4. Conceptualizing technopolitical practices

4.1. Context

The end of post-WWII reconstruction in Europe, the decay of Keynesianism as an economic model and a certain

commitment of higher income countries to the development of lower income countries - most of them ex-colonies of the former - led to a significant change of approach in what development and progress meant. Beyond physical access to resources, economic development and the establishment of healthy institutions, concepts like capacity building, emancipation and freedom itself quickly came into the spotlight. Two acknowledged approaches in this line are the capabilities approach of Amartya Sen (1980; 2001) and Ronald Inglehart's reflection about emancipative values and democratization, much centred on individual citizens (Welzel *et al.*, 2003). These approaches can be also understood in terms of the direction of power. Development in terms of resources, economics and institutions mostly aims at centralization, especially when we speak about institutional development, and economic development that is also about the institution of the market and the regulations to enable and protect it. On the other hand, the capability approach and emancipative values speak of decentralization, namely the empowerment of the individual to achieve the lives he/she has reason to value, which in our case can be understood as technopolitics for governance and citizen sovereignty.

In this respect, there are three issues that are often omitted in decision-making and are closely related to the potential that ICTs can have if thoughtfully implemented in a democratic system. Furthermore, if ICTs have a role in democracy - and in democratizing - it is necessarily related to the three stages of civil liberties that a citizen may enjoy:

Firstly, ICTs have an impact on civil rights, civil liberties and political freedoms. While freedom can be understood as being able to think and act following one's own will, representative democracy implies a loss of freedom as some sovereignty is shifted towards the elected representatives. This does not mean that people are not free, but they are definitely not free to decide because they voluntarily handed over part of their freedom. Or perhaps not that voluntarily: representation is compulsory by birth in most places in the world (Jurado Gilabert, 2013).

Secondly, empowerment can be understood as a step beyond freedom. If freedom is the absence of restrictions to think or act according to one's own will, empowerment is the strengthening of the ability to think or exercise that will. In other words, one cannot just do what one wants within the system, but the system will contribute to it, as it will foster one's capabilities. It is in this stage where empowerment,

beyond the freedom to choose one's representatives, means a certain margin to contribute directly to what is being debated or to the topic of the debate itself. Most initiatives and projects have been begun in this scenario of empowerment through participation (Abdul Rahim *et al.*, 2005). The problem is that the mirage of empowerment can lead to exploitation (Beardon, 2004) or actual disempowerment (Peña-López, 2011b) if some structural changes are not met (Giddens, 1984; DeSanctis and Poole, 1994).

And thirdly, the next step after freedom and empowerment is, necessarily, governance. If freedom is to exercise one's will, and empowerment is to do so with multiplied force, governance is well above that: it is not thought and action within the system, but on the system. That is, governance is about deciding or, at least, to be able to participate in a decision, thus co-deciding. And co-decision comes after deliberation and negotiation. Governance is to design the system according to one's needs (or more appropriately according to collective needs), or at least to design the appropriate institutions to do so (Font *et al.*, 2012). Surprisingly enough, given the potential of ICTs to affect governance, discussions around politics 2.0, e-voting and e-participation very rarely address changing procedures, protocols, institutions, frameworks or systems and even less transforming or even substituting them by other social constructs.

In short, increased freedom, empowerment and governance are the greatest potential outcomes of ICT in democracy. But quite often these concepts are not explicitly taken into account when democracy or its quality is at stake. On the contrary, they are taken for granted or, in the best possible scenario, as some independent variables which do not affect a system that is also taken as exogenous (as given).

The tension arises when these tools can easily be appropriated and turned into "networks of hope" (Castells, 2012). What we have witnessed since the beginning of the 21st century, and especially since the start of its second decade, is the mastering of ICTs to create communities, platforms, movements and layers of activism that have fought against different local and global crises. For example, the Western financial crisis (that affected many other countries); the lack of control of financial and economic globalization; the inability of governing bodies to realize the interests of their respective citizens; the various unrests,

demonstrations, protests, revolts and revolutions. However, these are communities, outside of institutions, outside of organizations of representation, brought in and enabled by technopolitics (Cantijoch, 2009; Fuster and Subirats, 2012; Peña-López *et al.*, 2014).

4.2. Purpose

We have already pointed out that in the political realm ICTs facilitate and accelerate the organizational and communicative needs of citizen platforms, making political organization possible with only a few online tools and a small initial budget (then mostly crowdfunded). Many software programs, web platforms and mobile applications speed up the processes necessary for idea collection, discussion, decision-making and voting as well as media and content creation. This also makes citizens' input and participation easily traceable.

The role that ICTs, in particular online participation tools and crowdsourcing platforms, play inside newly formed political organizations has gradually increased. However, these developments take place in a certain political context in which the pre-existing institutions and practices provide both opportunities and limitations. Therefore, technopolitical strategies aim to make use of existing practices and processes of participation (such as petitions, voting in elections, or party formation) with the support of ICTs.

In order to understand the components of technopolitical strategies, we provide a conceptual framework that aims to distinguish the effects of ICTs on different political levels:

- a) Communicative: using ICTs to produce or reveal information for the public's use, such as influencing public opinion by using tools and practices like content creation in social media, hacking or advocating in platforms such as change.org.
- b) Legal: pushing a participatory agenda by digitalizing existing rights and democratic practices, such as online citizen initiatives, ICT-enabled advocacy groups, e-referenda processes or e-recall.
- c) Organizational (internal): using ICTs in political organizations for the purposes of cheap and easy ways of communication and organization, such as crowdfunding, crowdsourcing, candidate selection and e-campaigning.

- d) Institutional (external): pushing ICT-driven participatory policies in government, such as transforming decision-making mechanisms, co-production of policy-making and participatory budgeting.

We also observe that in the aftermath of the social movements of 2011-2013, many technopolitical actors shifted their attention to political campaigning and electoral politics. New types of political organizations utilize the internet to facilitate and accelerate their organizational and communicative needs, for example "new parties" such as *Podemos* and *Barcelona en Comú* (Tormey and Feenstra, 2015) in Spain. In fact, these organizations acquire a political identity through the use of ICTs. They use social networks for co-production and distribution of political campaigns. Decision-making within the political organization is opened up for citizens' engagement through online and offline participation. Moreover, party information, including financing, is put on web-platforms, making the organization more transparent. In addition, ICTs facilitate and accelerate communication between the movements' leaders and local assemblies, which also strengthens the democratic legitimacy of the organization. This open and transparent approach helped them obtain popular support and even a surprising number of votes in elections. Until now, online tools and platforms were used in processes such as candidate selection, finalizing electoral lists, law and policymaking (municipal and national), campaigning and finance.

The internal roles of ICTs in changing the model of political organizations also create external impacts on institutional politics and the political establishment. As technopolitical actors promote the principles of openness and decentralization, they also expose the shortcomings in existing rules and processes. For example, online tools for candidate selection provide an alternative to the closed lists in other political parties in Spain and career politicians in general. Crowdsourcing legislation directly affects party politics in Finland and Iceland and crowdfunding poses a transparent alternative to campaign finance. This online engagement created pressure on other decision-making mechanisms to open up and for other institutions to provide more information and become more transparent. Many corruption cases were revealed. Interestingly, these citizens' platforms define their political organizations as tools for democratic change.

Looking at this framework, we can see how different actors and motivations can be categorically simplified. On the one hand, one network of networks relies on the closed processes of decision-making with information being exclusive to a certain number of people. Here, a communication network is pre-established, based on the rules and protocols of legal entities. Centralized power is organized in a more or less top-down approach. Information is abundant, but exclusive to a small group of relevant actors designated by political processes. The exclusiveness of information makes it more valuable and prone to misuse.

On the other hand, another network of networks relies on the open processes of decision-making, with information available to online crowds and their socially connected extensions. This network depends on co-production and sharing networks to spread political information, empower citizens and create political power. Certain tools can empower the local organization and connect it with larger political entities, such as citizen movement networks like *Barcelona en Comú*, or new political parties like the Icelandic Pirate Party, or certain political leaders like Bernie Sanders. The common approach in all these examples is to open up political processes so that citizens can be involved in or monitor them.

In the last few years, digitally equipped and politically active young people have attempted to participate in political processes. These coalitions are proving to be persistent and there is a degree of political trust building up. Fact-checking, content creation and data visualization all serve to distribute political facts and information so that citizen participation either transforms a particular process or exposes its shortcomings. Interestingly, by using existing rights and democratic practices these new actors hack the system from within by bringing their own organizational and institutional models.

Against this trend, the closed and centralized political powers resist the attempts to open up decision-making processes and make institutions financially transparent.

This means a citizens' network is now entering political processes, although the political establishment limits them by making information and decision-making less accessible. They interact with formal processes in different ways. This creates an antagonistic relationship between the establishment and 'new politics' on issues such as eliminating the influence of big money in politics by making party accounts transparent,

or increasing citizens' access to the political system by opening up electoral lists, or by proposing new issues.

The Internet is already becoming a site of contention between two communication paradigms: freedom of information vs. secrecy and surveillance. When we compare this approach with the role of secrecy and surveillance in the political establishment in the post 9/11 period, we believe that we are approaching a period when the two organizational models will collide. ICTs play an indispensable role in facilitating citizen input in the co-production of laws and policies and expediting citizen monitoring of government.

The entrance of technopolitical actors strengthens the quest for democratic change by creating pressure to open processes in decision-making and make institutions transparent. By combining existing rights and practices with ICTs, technopolitical strategies transform institutional politics from within. Overall, online participation tools and crowdsourcing platforms promote open and decentralized political processes and this reconfigures the political landscape by directly challenging the network of the political establishment.

4.3. Scale and direction

When elaborating on centralized versus decentralized development from a perspective of scale, one needs to understand the distinction between representative and direct/strong democracy (Barber, 1984). Within the representative paradigm, the traditional structure of political geography can be divided into four main political scales: the communal, regional, state and international scales (Cox, 1998). Within democracies, these scales ensure a hierarchical separation of power with the state as the main political actor (Taylor, 2015) that is influenced by economic and political interests on a global scale. Therefore, power is kept centralized with the nation as the most influential actor. We argue that in the technopolitical age this hierarchical structure is preserved, but that these scales are more closely linked together with a shift of power to the communal level, underpinning the direct/participatory approach to democracy and redefining power relationships within the state (Sassen, 2006). This tendency is not entirely new as in 2000 the World Bank put decentralization of decision-making at the centre of policy experiments (Bardhan, 2002), but it is reviewed in the light of digital technologies and their democratic capacities either for long-term participation or one-off participation spaces. In other words, with the

proliferation of ICTs we can observe more flexibility, more dynamics between the traditional scales (with a greater amount of information about the activities of each scale) and enhanced sovereignty of the individual. However, automatically centralized information about these activities can endanger the participatory project leading to easier surveillance which is a key problem when aiming for the security and integrity of individual choices, i.e. secret voting.

The communal and regional scale can be described as a conglomerate of small-scale groups. These can be geographic units, meaning that their identity is bounded to their location, or they can be interest-centred units through sharing common issues of concern. In most cases, however, they are a hybrid of the two units. The *Plataforma de Afectados por la Hipoteca (PAH)* in Barcelona, for example, is a political organization located at the communal level, sharing both geographic proximity as well as being united by a common interest to approach the housing crisis in Spain and mobilize against home evictions.

Two important changes can be observed on the communal and regional levels through the use of ICTs: easier organization through facilitated communication within the communal scale and their visibility on the international scale through the use of social media. Regarding easier organization, the vast range of Information and Communication Technologies for Development (ICT4D) projects for local communities in developing countries proves this statement (see Unwin, 2009). But the same shift can also be observed within the representative democracy paradigm. For example, neighbourhood groups and local branches of recently formed parties are able to organize themselves more effectively with the support of ICTs, enhancing their political potential for tailoring collective interests and communicating them to higher levels, as demonstrated by municipal political parties in Spain (Tormey, 2015).

Regarding the visibility of communal issues on the global level, ICTs have the potential to publish local issues and quickly bring them to the attention of an international audience. Within the vast body of literature about the role of ICTs in social movements, a popular example is the Zapatista movement, one of the first examples of web-mediated social movements (Cleaver, 1998; Ronfeldt and Arquilla, 1998).

This shift is most noticeable on the national level. Representative democracies function around the state;

however, the primacy of the state as the main political agent is being challenged in the “network society” (Castells, 2008) with the availability of tools that make its actions transparent and make governments accountable for their decisions. Slogans such as “governance without government” (*ibid.*) give rise to the question of whether the traditional political bodies of the state have become unnecessary and whether, for example, “the age of party democracy has passed” (Mair, 2013, p. 1). In other words, the state “can no longer be seen as a pre-given political unit” (Beck, 2006, p. 51).

Against these predictions, however, we can observe that the state still exists as the main political actor. The NSA scandal in 2014 serves as a recent example. In 2013, Edward Snowden leaked documents revealing the surveillance of civil society and high-level politicians by the NSA in the USA. Civil organizations argued that basic human rights were being violated, but the state did not suffer any consequences with respect to its economic and political interests. The same example serves to illustrate the power civil society has with the support of ICTs, namely revealing injustices and the hidden practices of traditional political actors, strengthening their own role as political actors. Despite this, the power of the state is still not challenged.

Building on the last example, we find the globalization of politics, that is, the nation state is still the main actor in the political scale. However, the pressure of “cosmopolitan self-transformation” (Beck, 20016, p. 166) within globalization “has shifted the debate from the national domain to the global debate, prompting the emergence of a global civil society and of ad hoc forms of global governance” (Castells, 2008, p. 678).

To summarize, we can highlight three major shifts within the political scales brought about by the technopolitical age: easier organization and information sharing among community projects, facilitated interest articulation for policy design on a higher level and facilitated mobilization for contentious politics. Here the ambiguity of the two-fold understanding of technopolitics manifests itself in enhanced control and surveillance directed by states and a centralization of the capacity to monitor citizens.

4.4. Actors

In the representative paradigm, the individual as a political actor is rather insignificant. Apart from voting, there is

no immediate connection between the political and the individual, as outlined in the introduction. This led to the crisis of democracy where the political sphere is detached from the individual (Peña-López, 2013) and mostly finds its means of political expression outside the traditional voting procedure as a participant in larger scale actions, in collective action within protests where an individual forms part of a whole.

In the technopolitical paradigm we argue that a contradictory shift takes place regarding political actors. A strengthening of the role of the individual, in its most extreme form, is the hacker (Levy, 1984; Raymond, 1999; Himanen, 2003). At the same time, the power of the network in contentious politics leads to the new logic of connective action (Bennet and Segerberg, 2012), a hybridity of identities that bridges the individual and collective expressions and leads to distributed leadership instead of centralized or decentralized leaders (Nunes, 2014). In other words, in Western political systems "the individual linked by networks is becoming the basic unit of the network society" (van Dijk, 2006, p. 20) and as a result the main actor in the technopolitical era. Therefore, we want to trace the shifts among the three main political actors: the institution, the individual and the collective.

Whereas governments on all scales (see above) use the internet to enhance their traditional practices, the most significant shift within technopolitics takes place at the bottom, within the role of individuals as empowered actors. In our understanding, they form the key players in the technopolitical age. Not only does the rise of social media, such as Twitter and Facebook, allow people to create content and comment on existing content, as observed in the diverse social movements around the globe facilitated and carried by the use of ICTs (twitter revolution etc.), but in the case of hacktivism, the infrastructure of the internet also permits direct and subversive influence on political issues. WikiLeaks and the leaks by Edward Snowden are the poster children for the empowered individual that has the ability to directly challenge and influence political processes that happen on higher levels. So within the centralized approach, the individual has the capacity to directly subvert the hegemony of the state by making sensitive information visible.

The decentralized understanding of technopolitics raises the question: How does the empowered individual behave in the network? Bennett and Segerberg (2012) introduced the significant distinction between traditional collective and connective action, a differentiation that helps us understand

the transformation of the role of the individual within the logic of networks that are exemplary for the technopolitical paradigm. Based on Olson (1965), the authors describe collective action as "getting individuals to contribute to the collective endeavor that typically involves seeking some sort of public good" (Bennet and Segerberg, 2012, p. 749). Here the individual dedicates him/herself to the narratives of the collective, contributing through his/her presence and following the narratives of the main organizations guiding the spirit and themes of the movement. The connective action logic is grounded in Benkler's observation (2006) that "participation becomes self-motivating as personally expressive content is shared with, and recognized by, others who, in turn, repeat these networked sharing activities" (*ibid*, p. 752). Therefore, the connective element that forms some sort of discourse amongst individuals leads to a strengthening of personal identity and self-validation.

The change in the relationship of the individual with established organizations in the technopolitical paradigm is impressively shown in a survey by Anduiza *et al.* (2011). The results of the survey indicate that, in contrast to traditional protest movements, the few organizations involved in the 15M movement were not the main trigger of the movement (Democracia Real YA excluded) and neither did most of them have any membership possibilities. In a similar manner, Nunes (2014) points to another distinction regarding the way individuals organize within the technopolitical paradigm, and introduces an explanation of "distributed leadership" enhanced through mass self-communication where there is no absence of leaders but "several, of different kinds, at different scales and on different layers, at any given time; and in principle anyone can occupy this position" (p. 33).

Similarly, Toret *et al* (2013) describe the actors of the 15M movement as a "presence of collective accounts as fundamental elements in the diffusion networks pointing towards the existence of a network-system of decentralized-distributed organization, without leaders or stable representatives" (p. 12) and refer to the image of the swarm as a reconfigurable, flexible organization that survives without the individual.

In conclusion, we can observe a shift of identities towards the representative paradigm where the institutional actor keeps its role, but the individual gains more power which leads to a distinct understanding of collective action when organizing with other individuals.

4.5. Synchronization

"If a place can be defined as relational, historical and concerned with identity, then a space which cannot be defined as relational, or historical or concerned with identity will be a non-place." This is how Augé (1995, p. 77-78) defines non-places, the transitional spaces that seem to lie between what we usually understand as a place. Augé's reflection is useful for our reflections: these non-places are, indeed, very relational, dense with identities and, in a very subjective manner, historical. Non-spaces are useful for our purposes as they challenge the idea of the traditional well-delimited space, both in time (when it is "used") and in space (in its very definition). Technopolitics also challenges the idea of a place as a well-defined piece of space where people "gather" and events "happen" or take place. In addition, because of its sense of being in transit between other (real) places, this helps to usher in another crucial concept in technopolitics: synchronization.

While discussing the 15M Spanish Indignados Movement, Monterde (2015, p. 207) writes that "another property of the multilayer space is that its dynamics depend on the activity of its own system, and the activation of the system happens when there is a synchronization of layers. The synchronization has to do with the way frequencies are adjusted in a world characterized by dispersion". For this synchronization to take place, it "needs a deterritorialization of personal identities, to find out the common, anonymous and powerful dimension of the connected peoples. In this context, synchronization deals with the growing feedback of (any kind of) singularities that come and act together" (Toret, 2013, p. 67-68).

This apparent lack of hierarchies but, at the same time, a proposal for new ways to act and coordinate is somehow what was envisioned in John Perry Barlow's *Declaration of the Independence of Cyberspace* (Barlow, 1996). Here, the concept cyberspace defined as a "third environment" by Echeverría (1999) is characterized as an environment which would go beyond the natural or physical environment and the urban or industrial environment. For Echeverría, the third environment is a new way to organize. It is thus interesting to see how these different spaces or environments intertwine, complement each other or contribute to co-building a common procedure or goal.

On the one hand, the different "spaces of autonomy" (Castells, 2012) conform the nodes of new networks of

cooperation where action takes place and synchronizes between different spaces or layers. According to the author, the American Occupy Wall Street movement built "a new form of space, a mix of a space of places, in a given territory, and a space of flows on the Internet" (*ibid.*, p. 68).

This mixture of spaces is, on the other hand, at the core of what Martínez Roldán (2011) and Corsín Jiménez and Estalella (2014) refer to when they speak about the city as hardware, as the construction of a new urban space populated by the wisdom of crowds and synchronized with other layers of knowledge. This situation of redefining physical spaces into knowledge hubs is not new (Best, 2010), but the phenomenon of technopolitics takes the issue to another level.

5. Technopolitics: towards a definition

Technopolitics involves the dynamic process between technological developments and political purposes. Technopolitics constitutes contested terrains in which political actors appropriate new technologies and use them for what they perceive as political instruments. These actors "interact with technological opportunities and constraints" and different technopolitical strategies emerge as a result of this interaction. This dynamic and contentious process amongst various actors reconfigures political relations and power dynamics through conflicting appropriations as well as negotiations.

Technopolitics also reconfigures power relations and opens up possibilities for new practices and approaches in the short term and organizations and institutions in the long term. In reshaping practices, technopolitics reshapes the mediation structures between people and between people and institutions. These mediation structures, enabled and enhanced by ICTs, allow for more open and distributed governance in an expanding process of the devolution of sovereignty.

Although technopolitics can be understood and applied both for centralization and decentralization purposes, or to enable and enhance centralized and decentralized environments, procedures and actions, we believe that the social structures (Giddens, 1984; DeSanctis and Poole, 1994; Parvez, 2006) they provide or enable or which emerge will

be decentralized. This is because the impact that they have on existing purposes most likely favour decentralized rather than centralized structural outcomes.

The opportunities and constraints that are internal to the logic of a technology face the opportunities and constraints that are internal to democratic institutions and organized politics. It is their complementarity or opposition that determines the final spectrum of approaches that can be used in politics. In other words, the design principles of a technology also shape the form in which political purposes are contested and the other way round, as expressed by Giddens (1984) in his structuration theory.

Thus, we believe that technopolitics is not the addition of ICTs into politics or activism, but a much more complex phenomenon that spreads in many directions.

We define technopolitics as a new context, enabled and enhanced by ICTs, where its actors aim at higher levels of freedom, empowerment and governance. Technopolitics reflect a multipurpose application of ICTs that aim at more efficacy and efficiency in democracy, but also at transforming traditional democratic practices, oftentimes to get them back to their original purpose, but with a refined

vision and mission focused on political emancipation and decentralization. Furthermore, we understand technopolitics as a multi-scale way to approach politics that is deeply rooted in the community but which connects with the global agora, and directed both to the achievement of finalistic goals as well as of intermediate goals affecting the design of protocols and processes. It encompasses the concurrence of multiple actors, contributing with their actions - big or small - and knowledge in a gift-economy characterized by a highly granular design of tasks and degrees of participation, and in the end it can be perceived as a synchronization construct that operates in and through many layers and spaces, (re)connecting actors and communities through shared procedures and converging goals.

Future empirical research should address these aspects and shed light on the distinct categories that have been presented here; for example, comparative research about contexts and scales, the different actors that we were referring to, and the elaboration of middle-field theory regarding purpose and synchronization. It was not our intention here to provide the necessary empirical operationalization for these endeavours but rather point towards a direction in how technological changes impact the political spheres between centralizing and de-centralizing tendencies.

References

- ABDUL RAHIM, R.; SIEGENTHALER MUINDE, G.; WALDBURGER, D. (eds.) (2005). *Access, Empowerment & Governance: Creating a World of Equal Opportunities with ICT*. Kuala Lumpur: Global Knowledge Partnership.
- ANDUIZA, E.; CRISTANCHO, C.; SABUCEDO, J. (2011). "The political protest of the outraged in Spain: what's new?" (Unpublished manuscript). UAB: Universitat Autònoma de Barcelona.
- AUGÉ, M. (1995). *Non-Places: Introduction to an Anthropology of Supermodernity*. New York: Verso.
- BARBER, B. R. (1984). *Strong Democracy: Participatory Democracy for a New Age*. Berkeley /California: University of California Press.
- BARDHAN, P. (2002). "Decentralization of Governance and Development". *Journal of Economic Perspectives*, vol. 16, no. 4, p. 185-205.
- BARLOW, J. P. (1996). *A Declaration of the Independence of Cyberspace*. Davos: Electronic Frontier Foundation.
- BEARDON, H. (2004). *ICT for development: Empowerment or exploitation?* London: Action Aid International.
- BECK, U. (2006). *Power in the global age*. Cambridge, UK: Polity.
- BENKLER, Y. (2002). "Coase's Penguin, or Linux and the Nature of the Firm". *The Yale Law Journal*, vol. 112, no.3, p. 369-446. New Haven: The Yale Law Journal Company. <<https://doi.org/10.2307/1562247>>

- BENKLER, Y. (2006). *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. Yale University Press, New Haven.
- BENNETT, W. L.; SEGERBERG, A. (2012). "The logic of connective action". *Information, Communication & Society*, vol. 15, no. 5, p. 739-768. <<https://doi.org/10.1080/1369118X.2012.670661>>
- BEST, M. L. (2010). "Connecting In Real Space: How People Share Knowledge and Technologies in Cybercafés". Presented at the *19th AMIC Annual Conference*, Singapore. Singapore: AMIC.
- BLOOMFIELD, B; COOMBS, R. (1992). "Information Technology, Control and Power: the Centralization and Decentralization Debate Revisited". *Journal of Management Studies*, vol. 29, no. 4, p. 459-484.
- CANTIJOCH, M. (2009). "Reinforcement and mobilization: the influence of the Internet on different types of political participation". Prepared for the seminar *Citizen Politics: Are the New Media Reshaping Political Engagement?* Barcelona, 28-30 May 2009. Barcelona: IGOP.
- CASTELLS, M. (2007). "Communication, power and counter-power in the network society". *International Journal of Communication*, vol. 1, no. 1, p. 238-266.
- CASTELLS, M. (2008). "The New Public Sphere: Global Civil Society, Communication Networks, and Global Governance". *The ANNALS of the American Academy of Political and Social Science*, vol. 616, no.1, p. 78-93. <<https://doi.org/10.1177/0002716207311877>>
- CASTELLS, M. (2012). *Redes de indignación y esperanza*. Madrid: Alianza Editorial.
- CLEAVER, H. (1998). "The Zapatista effect: The Internet and the Rise of an Alternative Political Fabric". *Journal of International Affairs*, vol. 51, no. 2, p. 621-40.
- CORSÍN JIMÉNEZ, A.; ESTALELLA, A. (2014). "Assembling Neighbours. The City as Archive, Hardware, Method, and 'a very messy archive'". *Common Knowledge*, vol. 20, no. 1, p. 150-171. Durham: Duke University Press.
- COX, K. R. (1998). "Spaces of dependence, spaces of engagement and the politics of scale". *Political Geography*, vol. 17, no. 1, p. 1-23.
- DESANCTIS, G.; POOLE, M. S. (1994). "Capturing the Complexity in Advanced Technology Use: Adaptive Structuration Theory". *Organization Science*, vol. 5, no. 2, p. 121-147. <<https://doi.org/10.1287/orsc.5.2.121>>
- DUNLEAVY, P.; MARGETTS, H. (2006). *Digital Era Governance: IT Corporations, the State, and E-Government*. Oxford: Oxford University Press. <<https://doi.org/10.1093/acprof:oso/9780199296194.001.0001>>
- ECHEVERRÍA, J. (1999). *Los Señores del aire: Telépolis y el Tercer Entorno*. Barcelona: Destino.
- EDWARDS, P. N.; HECHT, G. (2010). "History and the Technopolitics of Identity: The Case of Apartheid South Africa". *Journal of Southern African Studies*, vol. 36, no. 3, p. 619-639.
- FONT, J.; NAVARRO, C.; WOJCIESZAK, M.; ALARCÓN, P. (2012). "¿'Democracia sigilosa' en España? Preferencias de la ciudadanía española sobre las formas de decisión política y sus factores explicativos". *Opiniones y actitudes*, 71. Madrid: Centro de Investigaciones Sociológicas.
- FUSTER, M.; SUBIRATS, J. (2012). "Crisis de representación y de participación. ¿Son las comunidades virtuales nuevas formas de agregación y participación ciudadana?". In: *Arbor. Ciencia, Pensamiento y Cultura*, vol. 188, no.756, p. 641-656. Berkeley: Berkeley Electronic Press.
- GAGLIARDONE, I. (2014). "'A Country in Order': Technopolitics, Nation Building, and the Development of ICT in Ethiopia". *Information Technologies & International Development*, vol. 10, no. 1, p. 3-19.
- GERBAUDO, P. (2017). *The Mask and the Flag. The Rise of Anarchopopulism in Global Protest*. Oxford: Oxford University Press.

- GIDDENS, A. (1984). *The Constitution of Society. Outline of the Theory of Structuration*. Berkeley: University of California Press.
- HIMANEN, P. (2003). *L'ètica hacker i l'esperit de l'era de la informació*. Barcelona: Editorial UOC.
- HUGHES, J. J. (2006). "Human Enhancement and the emergent technopolitics of the 21st century". In: W. S. BAINBRIDGE and M.C. ROCO (eds.). *Managing Nano-Bio-Info-Cogno Innovations: Converging Technologies in Society*, p. 285-307. Springer. <https://doi.org/10.1007/1-4020-4107-1_18>
- JURADO GILABERT, F. (2013). *Tecnopolítica, redes y movimientos sociales. De la revolución en las comunicaciones al cambio de paradigma*. Sevilla: Universidad Pablo de Olavide.
- KELLNER, D. (2001). "Globalisation, Technopolitics and Revolution". *Theoria: A Journal of Social and Political Theory*, vol. 48, no. 98, p. 14-34.
- LEBKOWSKY, J. (1997). "TechnoPolitics". *21C*, Melbourne: The Commission.
- LESSIG, L. (1999). *Code and Other Laws of Cyberspace*. New York: Basic Books.
- LESSIG, L. (2004). *Free Culture*. New York: The Penguin Press.
- LEVY, S. (1984). *Hackers. Heroes of the computer revolution*. Champaign: Project Gutenberg.
- LIVERMORE, C. R. (ed.) (2011). *E-Politics and Organizational Implications of the Internet: Power, Influence and Social Change*. IGI Global.
- MAIR, P. (2013). *Ruling the Void: The Hollowing of Western Democracy*. Verso: London and New York.
- MARTÍNEZ ROLDÁN, S. (2011). *Movimiento 15M: construcción del espacio urbano a través de la acción de las Multitudes Inteligentes*. Barcelona: UOC.
- MITCHELL, T. (2002). *Rule of Experts*. Berkeley: University of California Press.
- MONTERDE, A. (2015). *Emergencia, evolución y efectos del movimiento-red 15M (2011-2015). Una aproximación tecnopolítica*. Barcelona: UOC-IN3.
- NOVECK, B. S. (2009). *Wiki Government: How Technology Can Make Government Better, Democracy Stronger, and Citizens More Powerful*. Washington, D.C.: Brookings Institution Press.
- NUNES, R. (2014). *The Organisation of the Organisationless. Collective Action After Networks*. Berlin: Mute Books.
- O'REILLY, T. (2005). *What Is Web 2.0*. Sebastopol: O'Reilly.
- OLSON, M. (1965) *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge, MA: Harvard University Press.
- PARVEZ, Z. (2006). "Examining e-democracy through a double structuration loop". *Electronic Government*, vol. 3, no.3, p. 329-346. Olney: Inderscience. <<https://doi.org/10.1504/EG.2006.009602>>
- PEÑA-LÓPEZ, I. (2011a). "Striving behind the shadow - The dawn of Spanish politics 2.0". In: S. VAN DER HOF and M. GROOTHUIS, M. (eds.). *Innovating Government. Normative, policy and technological dimensions of modern government*, Chapter 8, p. 129-147. The Hague: TMC Asser Press.
- PEÑA-LÓPEZ, I. (2011b). "The disempowering Goverati: e-Aristocrats or the Delusion of e- Democracy". *EJournal of eDemocracy and Open Government*, vol. 3, no. 1, p. 1-21. Krems: Danube University Krems.
- PEÑA-LÓPEZ, I. (2013). "Intención de voto en España 1978-2013. ¿Una Segunda Transición hacia una política extra-representativa?". *Comunicación en el XI Congreso de la AECPA. 18-20 de septiembre de 2013*. Sevilla: AECPA.
- PEÑA-LÓPEZ, I.; CONGOSTO, M.; ARAGÓN, P. (2014). "Spanish Indignados and the evolution of the 15M movement on Twitter: towards networked para-institutions". *Journal of Spanish Cultural Studies*, vol. 15, no. 1-2, p. 189-216. <<https://doi.org/10.1080/14636204.2014.931678>>

- PIAGGESI, D.; SUND, K.; CASTELNOVO, W. (eds.) (2011). *Global Strategy and Practice of E- Governance: Examples from Around the World*. IGI Global. <<https://doi.org/10.4018/978-1-60960-489-9>>
- RASMUSSEN, T. (2007). "Techno-politics, Internet Governance and some challenges facing the Internet". *Oxford Internet Institute, Research Report 15*, October 2007. <<https://doi.org/10.2139/ssrn.1326428>>
- RAYMOND, E. S. (1999). *The Cathedral & the Bazaar*. Sebastopol: O'Reilly.
- REDDICK, C. G. (ed.) (2010). *Politics, Democracy and E-Government: Participation and Service Delivery*. Information Science Reference. IGI Global. <<https://doi.org/10.4018/978-1-61520-933-0>>
- RODOTÀ, S. (1997). *Tecnopolítica. La democrazia e le nuove tecnologie della comunicazione*. Rome: Laterza.
- RONFELDT, D.; ARQUILLA, J. (1998). "Emergence and Influence of the Zapatista Social Netwar". In: J. ARQUILLA and D. RONFELDT (eds.). *Networks and Netwars: The Future of Terror, Crime, and Militancy*. Santa Monica, CA: RAND Corporation, p. 171-99.
- RUMOLD, M. (2015). "The Freedom of Information Act and the Fight Against Secret (Surveillance) Law", *55 Santa Clara L. Rev.* 161 (Online). <<http://digitalcommons.law.scu.edu/lawreview/vol55/iss1/4>>
- SASSEN, S. (2006). *Territory, authority, rights: From medieval to global assemblages*. Princeton, NJ: Princeton University Press.
- SEN, A. (1980). "Equality of What?". *The Tanner Lecture on Human Values*, I, p. 197-220. Cambridge: Cambridge University Press.
- SEN, A. (2001). "What is Development About?". In: G. M. MEIER and J. M. STIGLITZ (eds.). *Frontiers of Development Economics: The Future in Perspective*, p. 506-513. New York: Oxford University Press
- SHIRKY, C. (2008). *Here comes everybody. How change happens when people come together*. London: Penguin Books.
- STALLMAN, R. M. (2002). *Free Software, Free Society: Selected Essays of Richard M. Stallman* (Edited by Joshua Gay). Boston: GNU Press.
- TAYLOR, O. (2015). *Disruptive power: the crisis of the state in the digital age*. Oxford: Oxford University Press.
- THE WHITE HOUSE (2009). *Open Government Directive*. Washington, DC: Executive Office of the President.
- TORET, J. (coord.) (2013). "Tecnopolítica: la potencia de las multitudes conectadas. El sistema red 15M, un nuevo paradigma de la política distribuida". *IN3 Working Paper Series*, UOC, Barcelona.
- TORMEY, S.; FEENSTRA, R. S. (2015). "Reinventing the political party in Spain: the case of 15M and the Spanish mobilisations". *Policy Studies*, vol. 36, no. 6, p. 590-606.
- TORMEY, S. (2015). *The End of Representative Politics*. Cambridge: Polity Press.
- UNWIN, T. (2009). *ICT4D, Information and Communication Technology for Development*. Cambridge: Cambridge University Press.
- VAN DIJK, J. (2006). *The Network Society*. Sage Publications London.
- WELZEL, C.; INGLEHART, R.; KLINGEMANN, H. (2003). "The theory of human development: A cross-cultural analysis". *European Journal of Political Research*, vol. 42, no. 3, p. 341-379. Oxford: Blackwell. <<https://doi.org/10.1111/1475-6765.00086>>
- WINNER, L. (1980). "Do Artifacts Have Politics?". *Daedalus*, vol. 109, no. 1, p. 121-136.

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