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1 Governance, Networks and Information Technologies: Societal, Political, and Organizational Innovations, by Eric Brousseau, Meryem Marzouki and Cécile Méadel

1.1 Introduction

Digital technologies play a major role in the in-depth changes characterizing political and economic regulations both in international relations and of nation-states. They often provide the conditions for these evolutionary processes by means of new modes of information circulation, inter-individual interactions, and collective organization. They have also prompted the emergence of new modes of regulation and governance.

In addition, they are raising new issues, since global information networks affect the performance of information-based activities, the organization of related industries and the coordination amongst all kinds of stakeholders, whose interests are impacted by the rise of the information society.

As a result, both technical and political governances are becoming more and more intertwined. There is therefore a need to understand how technical, political, economic and social norms are articulated, as well as to understand who the main actors of this process of transformation are, how they interact, how these changes may influence the international rulings in terms of individual rights, public liberties, property rights, economic competition, market regulation, conflict management, security, sovereignty of states...

This collective book aims at addressing the related issues in a truly international perspective with views from different academic cultures and backgrounds. While the role of digital technologies is highlighted, factors which drive our rapidly changing world are also considered. How collective regulations evolve is analyzed in the broader context of the development of post-modern societies, of globalization, of the reshaping of international relations, and of the profound transformations of nation-states.

This book thereby aims at improving our understanding of the interactions between the evolution of collective governance principles (at all levels from communitarian to global) and the diffusion of digital technologies that translates into the development of information-based activities, the initialization of new social practices, and the rise of new modes of governance.

Indeed, on the one hand, digital technologies tend to influence governance mainly through two channels. First, digital technologies facilitate the management of the innovative processes of norms and standards elaborations. This is, for instance, illustrated by the practices of the World Social Forum. Information technologies provide the flexibility to aggregate information without imposing the classical constraints of collective debates on the management of agendas and processes to reach consensus or a majority of votes. digital technologies make possible the dynamic management of archives, tracks, forking (i.e. the emergence of new debates or new line of analysis), etc. This may lead to new types of norms.

Adhesion and compliance can be “negotiated”, in the way agents can decide whether they fully comply or not.

Second, as pointed out especially by Lessig (1999), digital technologies provide a relatively cheap and convenient means to implement norms. Indeed, the control of access and “code” makes it possible to monitor how information and virtual spaces are accessed and used. This is well illustrated by Digital Right Management technology (DRM), which allow the implementation of barriers allowing owners to charge for or to control the uses of digitized works of creation. Users often challenge these technological fences. Whether they are considered as unfair, useless and more generally illegitimate or not, the mass of lay users may well submerge the barriers after “hackers” break them. Technology, however, provides most users of information systems with a relatively costless capacity to implement norms. Governance can thus be more decentralized; i.e. both in the hands of individuals and organizations rather than being the unique prerogative of governments at various levels.

On the other hand, social changes are responsible for many of these new practices. The development of democratic forms of governance, even if it benefits only a minority of the global population, leads to a more decentralized design of systems of norms. There is, in effect, a strong tendency to evolve from representative formal democracy based on the delegation of regulatory power by citizens to representatives, toward multiple forms of more participative and more decentralized processes of elaboration of norms. Different types of stakeholders (citizens, experts, professionals, organized groups, etc.) are included in the processes of ruling characterized by consensus-building and negotiations. The resulting norms range from self-regulations to public/state-backed regulations, but they are all characterized by a high degree of involvement of “users” in the process of their elaboration. That leads to the co-existence of different types of norms elaborated in contrasted types of forums at different levels. Such a trend is well illustrated by the emerging environmental regulations aimed at dealing with climate change. Indeed, legally enforced nation-wide regulations result from recommendations and analysis proposed by the experts of the Intergovernmental Panel on Climate Change (IPCC) on which potential inter-governmental agreements are based. Before becoming legally enforceable, implementation is “negotiated” with the various stakeholders at the national level. National legislation is therefore no longer the result of the sole process of discussion and negotiation in national parliaments.

The processes of elaboration of norms go hand in hand with new forms of norms implementation. The State is no longer the monopolistic provider of the means of enforcement. Public-private partnerships characterize an increasing number of functions related to the provision of public order. In several circumstances, the State even retreats from its core regalian functions. This is well illustrated by the development of video surveillance, of security companies, of gated cities and more generally, by the “enclosure” of public areas. Of course, the magnitude of such trends differs from one country to another, and the ability of nation-states to monopolize and take care of enforcement alone has proven far from perfect in many historic periods. It is in fact a largely 19th-20th century phenomena. There is, however, unquestionably a move by the State to withdraw from trying to control enforcement alone, and to sub-contract or negotiate enforcement with all types of stakeholders. For instance, it is clear that the European Union has been promoting “new” approaches to regulations of economic activities based not only on the stakeholders’ involvement in the design of these regulations, but also on self-enforcement.

In this context, what is happening in the governance of digital technologies in general and of the Internet more specifically, is of central importance... and is particularly radical. There are three reasons for this. First, the trans-border nature of the Internet and its integration have

made it a global infrastructure around which all kinds of conflicts of norms, of legitimacy, of power, of culture, develop. These conflicts are out in the open or hidden. There is, however, a de facto multi-purpose competition among conflicting norms at the global level. Think of the principle of free speech, of the various interpretations of the public domain, of the right to privacy, of the right to voice by minorities or opponents, etc. The multipurpose nature of the Internet has also led it to transform itself into an essential infrastructure for a wide set of social, cultural, economic, political activities and sectors. Stakes are huge, and exacerbate conflicts both among nations and domains. Beyond the regulation of information flows and of accesses to network resources lies the actual content of civic rights, consumer protection, competition regulation, as well as the conditions to which knowledge is accessed, cultures maintained and developed, communities organized, and individuals participate in collective decision-making, etc. Lastly, the end-to-end architecture of the network — i.e. its distributed architecture — favors the development of decentralized collective action since the Internet provides all kinds of communities and leaders with the ability to organize themselves, and to benefit from the distributed intelligence that lies in the network's structure.

The regulation of the Internet is, thus, an arena in which all the technical and societal trends highlighted above are mutually reinforcing. Digital governance is thus an essential domain of interest because of the range and of the centrality of human activities that are impacted by the Internet, and because the regulation of the Internet relies on innovations that turn its governance into a laboratory from which many lessons can be drawn.

This introductory chapter is structured along four tracks. First, we highlight how the technology, and beyond the development of a knowledge-based society, is reshaping macro-governance. In a nutshell, the fast pace of innovation permanently challenges collective rules and norms while at the same time, the information infrastructure provides society with enhanced capabilities to identify issues and manage them. Second, we focus on the mechanisms through which the technology transforms the individual capability to influence the building and the implementation of collective norms. We highlight, in particular, the fact that in an increasingly complex world technical capabilities are the source of new legitimacies and new capabilities; hence, new potentialities and needs in matters of the organization of governance. Third, we show how digital technologies impact self-governance capabilities. Indeed, self- and community-based governance is not new. Traditional societies and even modern societies rely extensively on the governance provided by all types of communities. What is new with the Internet, and the underlying social trends, is the fact that these communities are internally loosely connected and based on non-exclusive membership. This results in a complex combination of fragmentation of and general interdependency in the society. Fourth, the technology impacts on the relative costs of private/self regulation as compared to public/state-based regulation. A society increasingly based upon self-regulatory mechanisms, raises new needs in matters of public governance, since the properties of private regulations differ from public ones.

As argued before, as a backdrop to the analysis of all these issues is the idea that major societal trends and, in particular, the empowerment and autonomization of individuals, are drivers of the observed practices that are far from simple “impacts” of technological development.

1.2 Macro-level transformations: digital technologies and governance

1.2.1 Innovation, Empowerment, and Collective Decision-Making Capabilities

Innovation, empowerment and decision-making may be identified as the three fundamental processes where digital technologies have been instrumental, leading to major transformations

in the political, social, cultural and economic realm. Far from technological determinisms as refuted by Manuel Castells, these changes are themselves included in larger evolutions of the global polity at multiple levels, which impacts in their turn the governance of digital technologies and networks (Castells, 2001; Cowhey and Aronson, 2009).

Permanent innovation characterizes the knowledge-based economy and the information society. Innovation operates at all levels: technological, industrial, organizational, commercial, and usages. Most of them are endogenous, as reminded by **Milton Mueller** in the context of the evolution of the nature of property rights over information and key network resources, and by **Eric Brousseau** and **Jean-Michel Glachant** in the context of network services. Constant innovation leads to an increased and renewed complexity of relationships and transactions between different actors and stakeholders, who are forced to develop agile strategies. Flexibility makes it possible to permanently meet the new requirements in matters of coordination.

Seen as knowledge management and coordination technologies, digital technologies are the means of *individual and collective empowerment*. They lower collective action costs and delays, and overcome territorial boundaries, leading to change individuals' relations to authority, as well as political and social reconfigurations, as stated by **James Rosenau and Miles Townes**. While these skills and organizational revolutions are still far from permitting the formation of a global polity, or even of a "global civil society", some non-governmental actors— anti-globalization movements, as well as business networks —, have been experimenting new, alternative models of networked coordination at the global level.

The means of *collective decision-making* are also being transformed, and traditional political institutions are no longer the sole methods of managing such processes, which leads to a shift from government to governance, that is to say the exercise of authority relies on informal instruments, tradition, norms, habits... (Rosenau & Czempiel, 1992). As a result, the modalities of democratic control are themselves being reconfigured and restructured in the particular context of globalization and of the development of a global information infrastructure. This leads to the need to reorganize appropriate checks and balances in the global information society, as analyzed by **Herbert Burkert**, in a cyclic way, which may be summarized as follows: digital technologies allow for decentralized control and individual action; leading to more inclusive and participative policy-making; however, necessary conditions are that technologies be open and neutral; which in turn requires political oversight over networks and technological development.

This generic, cyclic process may be achieved through various global digital technologies and network governance dimensions: access, content, privacy, security, cultural and linguistic diversity, intellectual property, domain names, (etc.) as it appeared in the discussions conducted during the UN World Summit on the Information Society in 2003 and 2005, and the follow-up processes since then. The three main governance issues regarding digital technologies are: the regulation of networks, the political oversight of this regulation and the conditions for a democratic oversight.

1.2.2 The Mutual Dependence of Democratic Governance and Openness of Networks

Openness is the keyword for an effective regulation of networks, defined as both openness of networks (see **Milton Mueller's** contribution) and openness of the regulation process (See **Eric Brousseau and Jean-Michel Glachant's** chapter.).

One of the key elements for openness is *inter-operability*, or the capacity to extend the network to new services and new players through a "plug-and-play" process. But the main issue of networks' openness is illustrated in the current hot debate on the network neutrality

principle. The debate, in a sense, may be seen as a “remix” of the previous debate on the common carriage principle, which developed in the early 1990’s after the break-up of public monopolies and the privatization of telecom operators. This principle, which played an important role in the development of transport and communication networks, implies that the licensed carriers provide “service on a non-discriminatory basis, neutral as to use and user” (Noam, 1994). Despite fundamental differences in the architectures and protocols of the Internet and of the telecom networks, the network neutrality principle elaborated for the former corresponds to the common carriage principle applied to the latter.

Most vertical or quasi-vertical integration in the network industry — think of mobile phone operators on one hand, and Google on the other — in terms of content and applications, coupled with the development of new technologies, protocols, services and applications (such as P2P, VoIP, IPTV, etc.), have raised concern about the *openness of competition* in the Internet industry. Following the idea that vertical integration threatens the Internet “end-to-end” principle (Lemley & Lessig, 2001; DeNardis, 2009), many authors have elaborated on the network neutrality concept, coined by Tim Wu (2003a). Practical cases of network neutrality breaches by major network operators occurred, bringing the debate to the political arena, most notably in the US Congress and, more recently, within the EU institutions or European governments (Marsden, 2010). The non-discriminatory provision of services remains the main concern of network neutrality advocates, even if important nuances are still to be clarified (van Schewick & Farber, 2009).

Such debates are influenced by the uncertainties and risks characterizing this highly and rapidly evolving domain. They must involve many players, including the average user, both to take into account the multiple evolutions and because the general interest and well-being are at stake. Regulators and other decision-makers develop therefore a multiplicity of “*participative debates*” and “*soft-regulation*” instruments that might enrich or divert the production of public legitimacy, as highlighted by **Eric Brousseau and Jean-Michel Glachant**.

Private actors and, to a certain degree, the civil society, are thus increasingly encouraged to meet and confront views, to coalesce, collude or compete through a number of tools.¹ Discussion fora, public hearings, ad hoc expert groups, consultations organized on white or green books tentatively framing a given issue, are open to various communities, interest groups, lobbies and, more generally, all types of stakeholders, allowing them to contribute to these “open debates” and to participate to “collective” decision-making.² Such tools and processes lead to information-sharing and capacity-building. At the global level, one example of such capacity-building is the UN Internet Governance Forum. On more focused domains of competence, but with the notable addition of recommendation or decision-making capacities, “The London Action Plan” dealing with Internet security issues (Brown & Marsden, 2007), or the French “Internet Rights Forum” (Marzouki & Méadel, 2006), constitute two good examples of this type of fora.

These new public policy processes and instruments raise the fundamental issue of the *political oversight* of the design of the regulations they might define or induce (Coleman & Blumler, 2008). Mainly at stake is the need to take into account the general interest, and to avoid the

¹ This raises a lot of question about the consequences on political life and democracy, the transformation of the public sphere, and the functioning of social movements. (Chadwick, 2006; Hindman (2008) warns about the myth of digital democracy, underlining the persistent role of the elite in the shaping of political information and debate.

² This proliferation of “new” public policy instruments and arena has even led some authors to formulate the hypothesis that “it may relate to the fact that actors find it easier to reach agreement on methods than on goals – what are instruments for some groups might be goals for others” (Lascoumes & Le Galès, 2007).

capture of the regulatory game by the main economic players or by the technological experts. A simple and wise direction lies in the “back to the basics!” principle that is, Montesquieu’s democratic division of powers and its system of checks and balances, as reminded by **Herbert Burkert**. However, political hazards and imbalances cannot be entirely avoided when traditional constitutional tools are relied upon. On the one hand, the executive shows a higher agility than both the legislative and the judiciary. On the other, private sector players and non-governmental organizations have gained influence in this game – though certainly not to the same extent.

A citizen’s watchful eye over the information infrastructure of the society is in itself, however, a necessary condition for a real democratic oversight of the polity. A really open information society is, indeed, needed to guarantee freedom of speech and the actual freedom to access and release information. These rights and guarantees set the condition for a true citizen’s control of politicians and of the formal and legal order. This requires that a certain effort be made in terms of empowerment and capacity-building, as called for by **James Rosenau and Miles Townes**.

1.2.3 In Search of New Forms of Legitimacy

These required transformations of governance tools and practices are not specific to the information society. They are driven and accompanied by larger societal trends showing the rise of new forms of democratic governance. In his recent work, Pierre Rosanvallon (2008) analyzes the crisis of democratic legitimacy through the crisis of its two main bases so far, the majority and the general interest principles. He shows how they have been confusingly mixed up with the concept of democratic election, despite their difference in nature: the general interest being a “justification principle”, while the majority is a “decision-making technique” (p. 10). He further identifies and elaborates three new forms of legitimacy: the *legitimacy of impartiality*, of *reflexivity*, and of *proximity*, and proposes a “new grammar of democratic institutions” embodying them (p. 23).

The *legitimacy of impartiality* is embedded in the development of control, regulation and arbitration authorities. Their institutional form vary across countries (Board, Council, Commission, Independent Administrative Authority...), but their functions are similarly defined and the expectations they generate are equally high. Data protection authorities are the typical means used in the information arena.³

The *legitimacy of reflexivity* has been theorized, mostly based upon the seminal works of Jürgen Habermas and Ulrich Beck. Society’s increasing complexity is preventing the establishment of a complete, just in time and direct democracy. Reflexive third parties and deliberative fora have developed to reflect the diversity or the fragmentation of the social reality. Rosanvallon identifies Constitutional Courts as the best embodiment of such third parties, with their “judicial review” capacities (p. 218). Although less institutionalized, other third parties, such as civil society organizations, social movements and scholarly associations, also play their role in the reflexive democracy field. However, such a reflexive democracy perspective shouldn’t be confused with the so-called “multistakeholderism”, as defined in the Internet governance field during the WSIS and tentatively implemented by the IGF (Malcolm 2008; Mathiason, 2008), or even previously, with ICANN (Antonova, 2008). Multistakeholderism refers to stakeholders — understood as governments, business sector and civil society — entering into a bargaining game with their own stakes and policy priorities.

³ According to **Herbert Burkert**, they have gained a true legitimacy in the European Union. In some countries, their existence has even led to erosion of the sense of privacy in the population. Citizens entirely rely on them for the protection of their rights

Reflexivity instead refers to facilitators such as hybrid fora and other dialogic democratic tools (Callon et al., 2009). Thus, it is not restricted to experts, stakeholders and “policy entrepreneurs” having found their “window of opportunity” (Kingdon, 1995) in the crisis of the Nation-State. According to Rosanvallon, it should be understood as “a larger vision of citizen participation and public deliberation” (p. 237).

As a consequence of and in close relation with the participation issue, the third concept identified by Rosanvallon is *the legitimacy of proximity* (or “closeness”). It is characterized by citizens’ claims or communities calls for the recognition of their specific concerns. Note that it comes together with a demand for greater transparency and accountability by the political institutions. Citizens’ adherence to public policies is hence directly related to their perceived equity, which means that everybody has a voice. This especially applies to normative institutions, and, as highlighted by Rosanvallon, to procedural justice (p. 270). Not only the content of the norm should be subject to social consent, but also its process of elaboration.

On the one hand, there is an increasing need for participation, permanent deliberation and consensus-building. On the other, transformations occur from a clear hierarchy of general norms (embedded in the principle of the rule of law; Chevallier, 2003) to a multiplicity of juxtaposed norms addressing various peculiarities, characterized by the plasticity of the forms they could take.

The conjunction of these evolutions, in line with globalization in all sectors, leads to the concept of multi-level governance. It should be understood not only from the local to the global levels, but also as new or recomposed connections between different actors. It implies the reshaping of an international relations system, with the increasing while sometimes re-defined role of intergovernmental organizations through specialized agencies (as thoroughly analyzed in the ICT sector by Drake & Wilson, 2008). Also, complex “trans-governmental networks” (Slaughter, 2004) develop. Beyond interactions among heads of state and ministries a dense web of governmental authorities and powers at all levels are re-building international relations, international norms and practices. These macro-level transformations translate, in terms of domestic and infra-domestic regulations, with important roles played by non-state actors and non-democratically controlled entities.

1.3 Micro-level transformations: digital technologies and regulations

1.3.1 Technical regulation as a source of fragmentation

In his acclaimed *Code, and other laws of cyberspace*, Lawrence Lessig (1999) showed how “architectures” or “codes” need to be considered as sources of regulation, together with legal, behavioral and market norms. As Lessig himself points out with historical examples, regulation and control by architecture, design and urban planning is not new, but with this book, he elaborates, after Reidenberg (1998), how this also applies to the cyberspace.

Going further than Lessig’s concept of code as a compliance mechanism to law and regulation, Tim Wu argues that code could also be used as a non-compliance or avoidance, in other words as an “anti-regulatory”, mechanism aimed at decreasing the costs encompassed by a given law to certain interest groups (Wu, 2003b). He documents the way the technology and the law are instrumentalized by various groups. Intellectual property right holders, for instance, desperately try to maintain old economic arrangements despite the technological evolution leading to new social usages and thus, to possible new economic models (Curien & Moreau, 2007). This has led users of protected works of authorship to develop strategies to by-pass legal lockers. P2P software and platforms, for instance, have been designed to exploit the loopholes, ambiguities and vulnerabilities of the copyright law. The legal regime based on intermediaries or gatekeepers allowed to distribute copyrighted work on a mass scale. The

new software simply removed the need for such intermediaries, thus “leaving primary enforcement against end-users as the only option”. The fact that DRM technologies have later been developed and implemented, as analyzed by **S  verine Dusollier** in her contribution, and have even been further complemented by anti-circumvention legislation, as she describes as a “Law (Copyright) – Technology (DRM) – Law (Anti-Circumvention), a three-tiered protection scheme”, is entirely compatible with Wu’s argument, the protection (or compliance) scheme becomes intertwined with the avoidance scheme: “(Copyright) Law – (P2P) Avoidance Technology – (DRM) Compliance Technology – (DRM Circumvention) Avoidance Technology – (Anti-Circumvention) Law.”

The same phenomenon is observed in the case of personal data protection where privacy rights are threatened by electronic commerce and advertising methods using personal data as the main resource. In a harsh critique of Lessig’s thesis, Marc Rotenberg (2001) demonstrates that, by advocating the use of technology platforms like P3P, developed by the World Wide Web Consortium as a technology enabling users to choose how their personal data may be used by commercial websites, Lessig acknowledges the establishment of property rights on personal information. He highlights a “Law becomes Code becomes Law” scheme. The example of the 1997 German multimedia law exhibits a “three-tiered protection scheme” in the privacy arena: Privacy and Fair Information Practice Law – Anonymity Technology – Anonymous Payment Services Requirements Law. In this case, the anti-regulatory mechanisms are not developed by final users and citizens but rather by organized economic actors (especially advertising companies). Here again, there is an intertwining of avoidance and compliance not only through technology, but also through formal and informal norms in an endless succession: “Privacy and Fair Information Practice Law – Personal Data Collection By Commercial Companies Avoidance Technology – Social Call For Comprehensive Privacy Legislation Against Unfair Commercial Practices Compliance Behavior – P3P And Other “Notice And Choice” Platforms Avoidance Technology.”

Rotenberg reinforces thus Wu’s thesis. When a law is disagreeable to a stakeholders’ group, and when the cost of legal and formal ways of amending it (e.g., through lobbying or other means of political influence) is high — either because compliance is based on social norms or because the group is disorganized (e.g., P2P users in copyright case) — then the “code” or the technology becomes a viable mean of law avoidance.

The technology, being both a compliance and an avoidance mechanism, technical regulation defines the space where it applies as well as the space’s gatekeepers. Addressing the specific question of legitimacy in Internet governance and building on Pierre Bourdieu’s theory of legitimation and domination, **Pierre Mounier** shows how the Internet is then fragmented into a myriad of small semi-private spaces where governance is dealt within restricted areas of legitimacy. This fragmentation is enabled and sustained by stakeholders’ ability to self-regulate the semi-private space under their control, that is, to design norms and implement them at the same time. However, the underlying conditions for this ability to be realized are the existence of multiple legitimacies and multi-level governance capabilities, instead of a single global legitimacy that would exert a hierarchical power to organize them.

1.3.2 Heterarchic governance, co-elaboration and the re-ordering of norms⁴

This fragmentation and absence of hierarchy do not mean anarchy. Self-regulated spaces and actors do interact, if only by their respective strategies of compliance/avoidance as discussed above. They thus constitute a heterarchic governance system (Jessop, 1998). They cannot entirely escape from the law nor from other public regulations (Padovani, 2009). As shown by political science research on the development of private and mixed public/private networks, public authorities and formal regulations are not losing control (Mifsud Bonnici, 2008). They are rather exercising it through modified forms (Mayntz, 1998). They operate “in the shadow of hierarchy”, to use a popularized expression in the literature on governance (Scharpf, 1999).

Moreover, the networked heterarchy is not only composed of self-regulated spaces and actors. It also includes privately regulated public spaces. The particular and pivotal position of some actors as gatekeepers makes them able to act as control points in the Internet space or as governments’ instruments of law enforcement. The ICANN, a key gatekeeper, has a central authority over the Internet through its management of the domain name system and IP addresses, a critical resource (Denardis, 2009). Besides the ICANN case study included in his contribution, **Milton Mueller** comprehensively identifies and discusses the democratic issues involved with such a centralization of power and control exerted by a private organization under contract with a single government over all Internet users (Mueller, 2002). Other important gatekeepers include network operators, Internet service providers, search engines and, most recently, social networks owner companies.

The complexity of this heterarchy defines multiple orders, leading to the need for organizing their self-organizations (Jessop, 2003). This implies *mutual recognition and mutual legitimation* between all actors, leading to re-ordering the process of norm-making, and *defining new patterns of interactions*, through cooperation, co-elaboration, and other forms of interaction between the whole range of social and political actors (Kooiman, 1993; 2003). In the field of Internet Governance, two main ordering principles are witnessed, on the one hand, through the acquisition of new legitimacies, and, on the other, through reflexive governance.

New forms of legitimacies are acquired or regained through *mutual recognition* of different actors or norms designers. Such a process has most notably been undertaken by intergovernmental organizations (IGOs) and non-governmental organizations (NGOs). As demonstrated by **Yves Schemeil** in a broader perspective than the sole regulation of the Information Society, both IGOs and NGOs are experiencing “the strength of being weak” in the current crisis of democracy, representation and legitimacy faced by Nation-States. While IGOs cannot claim representation and equal participation as Nation-States do, they stress accountability, transparency and openness as their main democratic principles. This allows them to continuously expand their domain of claimed competence. NGOs, on their side, are demanding more consideration for their competence. Both IGOs and NGOs attempting to reinforce their legitimacy, a “win-win strategy”, operates where “both actors need cross validation to fill the gap between their initial mandate and their actual impact.” This process of mutual reinforcement by recomposing political space is visible not only at this macro-level, but also at the micro-level of online communities, as analyzed by **Pierre Mounier**.

Bob Jessop (2003) theorizes this understanding of governance as “the reflexive self-organization of independent actors involved in complex relations of reciprocal

⁴ A heterarchy is a system of organization replete with overlap, multiplicity, mixed ascendancy, and/or divergent-but-coexistent patterns of relation. The concept of heterarchy was first employed in a modern context by McCulloch (1945) to examine alternative cognitive structure and point out, in particular, that the human brain is not organized hierarchically. This has been widely used since then in the fields of artificial intelligence and computer design (Crumley, 1995)

interdependence, with such self-organization being based on continuing dialogue and resource-sharing to develop mutually beneficial joint projects, and to manage the contradictions and dilemmas inevitably involved in such situations”. *Dialogue* thus appears as essential in the governance process. Its reflexive and procedural rationality, the negotiated consent as its criterion of success, and the network as its typical form, make it the privileged principle for new ordering and for building new forms of legitimacy.

This is especially well illustrated through the post-WSIS process of the Internet Governance Forum. Indeed, the IGF has prevented itself until now from any formal outcome, and even from making any recommendation. However, aiming at reaching a consensus, its deliberative procedures impact the models and practices of representation, the forms of conflicts and controversies resolution, and even the modes of public action. While its mandate is, inter alia, to “discuss public policy issues related to key elements of Internet governance”, it reproduces the functioning of the previous Working Group on Internet Governance which was constituted by forty members from different governments, The private sector and civil society, “who all participated on an equal footing and in their personal capacity” (WGIG, 2005) to the elaboration of **consensus**. As previously mentioned, this non-constraining feature of the IGF makes it a perfect capacity-building instrument. It would certainly appear as close to Habermas’ ideal model of learning through procedures and argumentative logic, if only it didn’t raise calls for more openness and civil society inclusion, as attested by the proceedings of its first two years of discussions (IGF Proceedings, 2008).

The IGF experience might be confirmed by other examples. On the basis of cases of environmental, biological and scientific resources management, **Tom Dedeurwaerdere** shows that sub-politic, by which non-state actors solve social problems through direct negotiations, tend to be more appropriate than processes of political cooperation and compromises among representative authorities, especially when global problems are addressed.

1.3.3 Normative consequences of privatization, proceduralization, and prevention

Governance arrangements may thus encompass various and complex forms, especially when they are focused on technical regulations and the subsequent strategies of compliance/avoidance, leading to the fragmentation of the Internet. These fragmented spaces may redefine their own orders, and may interplay following different scenarii: antagonistic mechanisms of law compliance or avoidance, co-elaboration through mutual recognition, consensus building through rational dialogic processes, or power relations confronted in agonistic arenas. The resulting heterarchic system itself requires a meta-heterarchic level (Jessop, 2003) to manage interactions among components of this complex system. Such a meta-hierarchy is mainly – but not only - organized on the Internet by governments acting on the main control levers, which are the gatekeepers of the sub-spaces, especially Internet service providers (ISPs). Procedural arrangements with them have important normative consequences.

Actually, while Internet governance is a concept that has rather recently emerged in the public sphere, many of its involved issues, policies and arrangements have been discussed since the mid-90s, when the Internet became accessible to a larger and more heterogeneous public. This included discussions in various national, regional and international fora (Pouillet, 2004), most notably on how regulating content and identifying liabilities on the Internet (Marzouki, 2008a). The huge literature on Internet regulation regimes – including the grey literature – finally coined the concept of “co-regulation”. That is, as analyzed by **Benoît Frydman, Ludovic Hennebel and Gregory Lewkowicz** in their chapter, a regime where either regulation is co-elaborated and co-operated by a mix of public and private actors, or the state

voluntarily delegates all or part of these activities to private parties. Internet governance is thus an extension of the concept of Internet co-regulation in its first understanding. This has been summarized in the WSIS Tunis Agenda: “Internet governance is the development and application by Governments, the private sector and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programmes that shape the evolution and use of the Internet” (WSIS, 2005). As so defined, the concept leads to three forms of meta-heterarchical arrangements: proceduralization, agencification, and privatization.

Proceduralization has been theorized by Habermas as the means to reach legitimate decision-making, grounded on rational discourse and deliberation (Habermas, 1996). It is also aimed at achieving the efficiency of law and regulation in the framework of a shift of legitimacy from an input — democratic conditions — to an output — efficient results — orientation (Scharpf, 1999). These output-oriented criteria characterize the concept of “good governance”, particularly as it has been defined at the European Union level, encompassing the five principles of “openness, participation, accountability, effectiveness and coherence” (EC, 2001).

Proceduralization is also a means to achieve impartiality (Rosanvallon, 2008), and thus goes hand in hand with *agencification* (Christensen & Lægveid, 2006) in the move towards the regulatory State. In the field of digital technologies and Internet governance, such agencies have proliferated, either as purely public or more and more as co-regulation public-private agencies. One of the identified characteristics of law transformation in a globalization context is the increased use of procedural rules instead of substantive rules (Frydman, 2004). Such a proceduralization trend is developed by **Benoît Frydman, Ludovic Hennebel and Gregory Lewkowicz** in their chapter, most notably through the analysis of “notice and take down” provisions of the 2001 European Directive on Electronic Commerce, in view of limiting the liability of Internet service providers hosting unlawful content on their servers. This delegation of law enforcement, once the regalian function of the State, to private parties, is also witnessed in other areas of Internet governance, and has been identified, for instance, as one of the main trends in ICT-based public security policies (Marzouki, 2007). In the case of the Internet addressing system, the transfer of the control of the root of the system in 1999 from the US government through contractual agreement to a private entity, the ICANN, has been analyzed as a delegation of powers violating the US Administrative Procedures Act and the US Constitution (Froomkin, 2000b).

This movement towards *privatization* is further developing in less regalian areas. There is an increasing promotion of alternative dispute resolution (ADR) mechanisms, especially when implemented in on-line form (e-ADR). While ADR traditionally concerns disputes that are not subject to judicial decisions, such mechanisms have proliferated, including in fields normally subject to legal litigation, with the aim of avoiding court battles (Schiavetta, 2004). Codes of conduct and other such incitements to specific behavior have gone further than simple charters or the collections of “best practices”. They have become part of contractual obligations, especially for ISPs, promoted at the national level by law or at the regional level, for instance, through European Union directives (Marzouki, 2006). In the field of copyright law, access to users-generated content is more and more governed by various private licensing, such as the Creative Commons licenses. As analyzed by **Niva Elkin-Koren** in her chapter, such a development of private arrangements through contracting, sometimes without actual oversight by the legal authority, leads to a rise of private ordering in the governance of digital networks.

These developments induce important normative consequences (Marzouki, 2006). The weakening of so-called “guarantee rights” — that is, the right to equality before the law, to an effective remedy, to a fair trial, to the *habeas corpus*, and the principle of no punishment without legal ordering — leads to serious impacts on the substance of fundamental rights and freedoms, on democracy, and on the rule of law. The massive use of technical mechanisms, in particular, the *ex ante* recourse to technical means to avoid infractions — and more generally speaking, *to prevent any “deviating” behavior* before it can even be committed —, instead of *ex post* enforcement leads to an entire reversal of perspective and values... and incidentally increase the complexity of the architecture, with consequences in terms of costs, transparency, and reliability (Clarke 1997).

There is a noticeable novelty here with respect to the early analyses, most notably those developed by Lawrence Lessig. While we are witnessing the changing nature of the State and the rising importance of private orderings, these movements have encountered important technical progress, where gate-keeping mechanisms (not only of contents, but also of protocols, bandwidth, data packets, and other space gate-keeping means) have become central. Beyond the central role of gatekeepers (which will be further discussed in section 4), Williams (2004) highlights that “The effectiveness of technology as a regulator lies in its ability to alter behaviors, its ability to be shaped, its rapid adaptability, its *ex ante* approach, its wide reaching scope, its sensitivity towards criminal and sub-criminal activity, and its less visible approach to social control.” Gate-keeping and automated enforcement thus threaten the democratic and the legal means of control of public and private regulators that have been developed for the last four centuries, at least in most advanced countries.

1.4 How Technologies Transform the Forms of Self-Governance

Among the various existing spaces, online communities have developed particularly innovative forms of self-governance relying on technical means, and are worth analyzing in detail. Information technologies have enabled people to meet in new ways, through online communities that organize the production, consumption and dissemination of information. The nature of what brings people together through digital technologies is, however, still so ambiguous that the abundant literature on these collectives has produced only vague or polysemic definitions that highlight different aspects (Proulx & Latzko-Toth, 2005): simply the co-presence long enough of the actors to form personal relationships (Rheingold, 2000); the stability and permanence of the group, the nature of shared activities (Gensollen, 2006); the uses of the medium (Amin and Roberts, 2008); the formalization of rules (Preece, 2000); and so on. It appears difficult to qualify the online social groups, all the more when the metaphor of virtual community could be considered as “inadequate to characterize the panoply of social interactions, processes, and human sharing occurring in cyberspace” (Fernbeck, 2007). This diversity increases with the growing heterogeneity of Internet users due to the massification and globalization of digitization (Zittrain, 2008). Actually, these on-line communities are characterized by the fact that different information technologies link up distant contributors from diverse backgrounds around a common interest, condition or project. These contributors' attachments to the collective vary widely, but are often limited or even very loose.

If community-based governance is not new, we analyze how digital technologies impact the capabilities of self-organization. This raises a set of questions, from how do these groups, whose distance activity is mediated by technical artifacts, organize themselves, to how they set their rules and manage their conflicts. One may wonder, in particular, whether technologies transform the governance of the groups that mobilize them. How do digital technologies impact on the actors' capacity to organize collective action? How do “scripts”

(Akrich, 1992a), embedded in technology, perform relationships between actors, role-sharing and the distribution of competencies? Finally, how does technology empower collectives? Christine Hine (2000), for instance, shows that the resources allowing a specific group to be convincing and to attract an audience depend not only on the public's responses and the transmitter's contribution, but also on the group's technological choices.

In what follows, we show that even if a small group of "inventors" and "first users" happens to master the main technical options, users keep a wide plasticity in their technical choices. They impact therefore on the techno-organizational dynamic of alternative communities.

1.4.1 The Automation of Governance

The governance mechanisms of on-line communities are no more "spontaneous" than those of off-line communities. Contrary to the libertarian utopia of the Internet (Barlow, 1995; Turner, 2006) —an extension of the mid-1990's hackers' ideology (Turner, 2006) — e-communities are very well-organized and their regulation relies on systems or rules organizing problem-solving, and interactions, and conditions for participation, and conflict resolution. The decentralization of the production distribution of authority and the hierarchy within the organization... Even in sometimes considered transgressive or marginal communities like sex-pictures traders or queer groups, a social order, mediated by technological options, is established that necessitates formalized rules and forms of policing (Nip, 2004; Slater, 2002).

Yet, because they are ICT-mediated, these groups have different characteristics to those off-line. Apart from the extreme diversity of e-communities differentiated by their medium, size, subject, the members' equipment, and so on, their performance on the basis of digital technologies alters their ways of constructing and applying these rules, especially because they are *delegated to automated devices*. Pointing at those devices does not mean that technology has to be considered as an autonomous form of regulation; technology is intricately connected with other modalities, such as legal and social norms (Callon, 1986; Hosein & al., 2003).

The regulatory tasks assigned to robots concern different aspects of regulation. First, these automatic devices can be given the job of protecting the community against attacks that could endanger it or against various kind of vandalism: either attacks of a general nature, like spams, or specific ones, like trolls. They may also, more simply, combat the inadequate use of common resources or deviant behaviors.

Second, automatic devices organize collective action. They indeed support or facilitate division of labor by articulating tasks and distributing competencies (Akrich, 1992b). Certain tools, for example, serve the coordination of the group's work by allowing the merging of outputs, while avoiding inconsistencies (Iannaci, 2004). They may define the participants by establishing the conditions of entry and the authorized formats of intervention, by setting up automated procedures of qualification of both participants and participations. This is the purpose, for instance, of the 'stars' and other means of recognition given to the most active members of on-line forums, profiles of evaluation of eBay, contributors to Wikipedia, etc. (Auray & al., 2007; Lampe & Resnick, 2004; Méadel, 2006). They can also be mobilized to collectively govern the community, as exemplified by the sophisticated voting mechanisms described by **Nicolas Auray**. Designed *a minima* as a coordination tool, technical artifacts can be seen as organizational solutions to implement new decision-making processes in difficult to regulate communities due to their fragmentation and heterogeneity, especially when the reasons for members' mobilization and involvement are uncertain (Wright & Street, 2007).

The delegation of all these tasks – which most of the time could be performed by an administrator or an authority – to an automated mechanism is not only or exclusively chosen for efficiency (even if it may make 'policing' tasks simpler and more effective), as showed by **Christophe Aguitton and Dominique Cardon**. Automated procedures seem to *create trust* because they ensure equal treatment for all contributors, reduce arbitrariness and allow for the participation of strangers or anonymous participants. This is precisely the case where, after the participants have been consulted on the Internet, the choice of topics selected for the debates is delegated to a lexicographic robot reputedly capable of respecting the constraints fixed by the organization (openness to all, refusal of delegation and decisions based on consensus).

Use of automated governance tools can also favor the implementation of all kinds of *democratic mode of organization*, like those constrained by consensus. This form of governance is based both on the refusal of delegation to representatives, and on open and free participation. Decisions can be taken only at the end of a (long) process (relying on “time, bargaining and negotiation”, as **Aguitton and Cardon** state) to end up with a statement to which no one is directly opposed, *hic and nunc*. This makes the problems of policing even more complex, since any capitalization or control has to reach a consensus (Papacharissi, 2004).

The delegation to these tools is therefore believed to introduce neutrality into the procedures of group management. This is not however a matter of generalized equality. These same tools develop procedures of qualification, for example, according to the intensity of individuals' contributions or their degree of competency evaluated by the other members.

The reliance on technology does not, however, totally prevent arbitrariness and power relations. The communities may be reflexive, but the rules are not discussed in their entirety. The increasing weight of proceduralization demands that a choice be made between transparency of decisions and their production. Authority cannot be delegated entirely to robots (Akrich & Méadel, 2007). Even when rules have a large degree of formalization (which is by no means always the case), they are not sufficient to regulate the group. Designers of the system and early adopters often have a strong influence on the regulation of these groups and communities. The constitution and perpetuation of collective spaces stem from the informal activity of support for the group and of conflict management, activities distributed between some participants, especially the most active of them, who then draw a strong political influence on the dynamic of the group, its regulation, and its production.

1.4.2 Characterizing On-line Communities by their Purpose

To what extent technical artifacts, automated robots or more generally systems for managing on-line collectives, transform and format communities? Does elimination of the physical or geographical constraints and removal of social barriers enable free participation in the activities of a collective?

Differentiating between e-communities according to whether they exist off-line or not could yield a first answer based on a contrast very often made in the literature (Kollok and Smith, 1999; Papadakis, 2004; Nip, 2005). This would imply that, on the one hand, there are communities, which are created online and whose entire activity, at least in the initial phase, takes place on the Internet. The link between the members then exists only via the artifact or at least is formed through it. On the other hand, there are the communities that first existed off-line, and then redeployed (all or part of) their activity on the Web, with the off-line part in-printing the group's governance (Baym, 1995). How do the norms of these groups change when there is a redeployment of the on-line activity? **Christine Hine, Nicolas Auray or Pierre Mounier** point out that the external constraints, like legal regulation, social status or

scientific reputation, are not made operative in the same way in these two types of community. They, nevertheless, impact strongly on the norms of both, without clear distinct effects between pure on-line and other communities. Most communities are, indeed, embedded in social and political spaces that transcend off-line/on-line boundaries. As the case studies show, it is impossible to establish a strong differentiation neither among their procedures of regulation nor in the degree of intervention of technical artifacts.

The differentiation between communities probably lies in a more structured way in the differentiation between stable groups and ephemeral ones, or groups which constituency is permanently evolving. Indeed, the groups constituted off-line tend to be more stable. The *instability of the community*, in terms of the members' renewal, poses specific problems of continuity of common norms and practices. It therefore imposes constraints on the organization of the collective, as shown, for example, in the comparison made by **Christine Hine** between marginal sex picture traders and networks of biologists. While digital technologies support in both cases reflexive debates on goals, principles and practices, the role granted to an automated regulation seems to be more structuring in unstable communities, .

This sustainability of the collectives is directly related to the object that brings the members together and binds them (Shirky, 2008). The community is defined by its form of regulation and its procedural mechanisms, as well as by the nature of its production and activity, and by the way in which members contribute to the construction and life of the collective. We propose a typology of online communities taking into account what it produces both for the individual and for the collective. Four types can therefore be distinguished: *exchange*, *empowerment*, *consensus-building*, and *collective work communities*.

Exchange communities: above all, the members exchange information and/or goods. Commercial exchange is simply one of the possibilities in this type of community and transactions a possible outcome among others. The model is that of exchange, with the expectation of quid-pro-quo; whether a good or information. The exchanges of information in Usenet forums, of assessments on eBay, of information goods on file-sharing platforms, and the cases discussed in **Auray** and **Elkin Koren** contributions constitute various examples of such communities. Is this a “true” community when what brings the members together is very limited: a common consumption activity? Like in the case of mass media, it creates, nevertheless, a sort of “imagined community” (Anderson, 1983). The platform, the technical artifact, sets up a public space in which the individuals enter into relations with others who resemble them, and with whom they can mutually compare their behaviors.

Empowerment: here too, the members of the collective exchange information and data, but their contributions provide them with more than simply something known and expected in return. The member contributes to the collective activity without expecting an immediate return, apart from the debt that the collective (may) feel it owes him/her, or symbolic reward in terms of recognition and reputation. The participation contributes to increase the competency of the members of the group, and to improve their level of information, as illustrated by the biologists' case study (see **Hine's** chapter).

Consensus-building: through its exchanges the community tries to construct a collective agreement, a common contribution on the theme or in the field that binds members together. Its unity no longer depends on a shared interest only; it produces a conception of the world (even its own world) endowed with some coherence, and exportable to other spheres. The group can therefore become visible from the outside as such, even if it does not necessarily stand up for this aim. A typical example of such communities, analyzed by **Aguitton and Cardon**, is the one formed by participants to World Social Fora.

Collective work: The members of the collective come together to generate a real, programmed and formalized common output. This corresponds to the emblematic image of software developers working on open projects. In this case, the degree of integration of the members is high because the collective is identifiable as such as an author. But the collective may also be more fragmented, for example, when the actors contribute freely, with relatively few barriers to entry, in the common project, as in the case of contributors to Wikipedia.

1.4.3 Technical Artifacts, Deliberation and Self-Policing

Of course, these are ideal types. In many cases the activity of communities belongs to more than one of these types. As shown for instance by **Madeleine Akrich and Cécile Méadel** in their chapter, some patient communities may answer the questions of new patients (empowerment), establish and adopt collective positions on their health problem in the public sphere (consensus-building), and produce common tools, for example, for monitoring their pathology (collective work).

In each of these ideal-types, technical mechanisms have different structuring power, and the share left to automated regulation varies, as shown by **Pierre Mounier**. In addition to the stability of the group mentioned above, another criterion seems at play: the intensity of the debate on how the group defines itself, its object, its rules and its modalities of exchange. This definition could be at the heart of the process of common production, and become the most significant and discussed part of the exchange, as in the consensus-building type, or to a lesser extent in the empowerment communities. It could be limited to certain aspects of the self-definition, as the content of the common project in the collective work communities. Conversely, it could be well known and indisputable, as in the exchange communities where every member is loosely involved. A structural laxity of the common definition creates a convergence of thought around it, allowing for the most diverse appropriations, and enriches the range of liable contributions, liable, but inexpressive for the automats. The more the production of the group is complex and continuous, the more the group is stable, and the less the regulation of the group is delegated to machines.

In fact, the regulation of these communities can be conceived either as a collective task on the basis of consensus, or as a higher principle — that can, of course, be circumvented or disregarded —, but that can in no way be ignored. When regulation is a collective task, which corresponds primarily to the exchange and empowerment types of communities, policing is constantly under negotiation, transformed and debated. These very debates enable the collective to be defined and perpetuated. When regulation is a higher principle, which relates essentially to the consensus-building and collective work communities, policing is not intangible, but is transformed through a decision at a higher level, which may be triggered by suggestions or transgressions at grassroots level. This second model is not necessarily less democratic than the first (there may be consultation between the members or delegation to representatives). The point is again that the more intensive orientation toward collective/joint production, the less governance tends to be delegated to artifacts. Even in spaces like Wikipedia, where many tools frame participation, much room is left for discussions on the encyclopedia's main options (especially everything concerning verification of content), as pointed by **Mounier**. When regulation is not delegated to automats, regulation and the definition of collective work are negotiated at the same time.

Finally, an important common characteristic of these groups is the *participants'* 'good will'. No matter how sophisticated the regulatory tools and how inventive the 'political' procedures organizing decision-making may be, the existence of the group and its development stems above all from the free participation of the parties. This comment weighs the role of ICT governance in so far as it is not imposed on members unless they agree, at least by default.

This is somewhat specific to on-line communities, as they form or are joined upon individual will of participation.

This does by no means apply, however, to all fragmented spaces, especially those resulting from norm re-ordering more and more based on private, or privatized, orders. These new orders de facto apply to individual participants, with or without their adhesion or consent, and redefine the balance between public and private governance.

1.5 A Renewed Debate On Public vs. Private Governance

As highlighted in particular by Lessig (1999), one of the central features of digital technologies is that they allow to decentrally implement code and norms. By coding digital sequences individuals can easily make self-enforceable any rule about their condition of access and use. As pointed out by Brousseau (2004) and others (in particular Lemley, 1999), this capability to control the access and the use of digital goods is, in fact, extended to many non-fully digital activities since the same capabilities of erecting digital fences and tracking uses can be used to monitor digital spaces on which coordination is organized. Those in control of these spaces — whatever they are: market places, “communities”, commons, collective repositories of information goods, etc. — can de facto exclude or include in relational networks, which allow the imposition of norms of behavior both on-line and off-line if access to off-line activities is conditioned by on-line participation (think, for instance OF a market place). The result of these technological developments is, in economic terms, a substantial fall of the relative cost of self-regulation, as compared to public-state-based regulation.

1.5.1 A Shifting Balance of Powers

The result is a substantial shift in the balance between public and private regulations. Traditionally the extent of private/self regulation is bounded by the poor enforcement capabilities of private regulators (see Brousseau & Raynaud, 2011; Brousseau et al. 2010)). Self-regulations are based on adhesions. Members of a self-regulated community compare the costs of compliance with the benefits they draw from the collective regulation. They are free to opt out of the system. The only cost is that they lose the benefits associated to the self-regulated community, whatever they are: reduced transaction costs, lower level of risk, access to pooled resources, risk-sharing, etc. Because private regulators usually do not have strong retaliation means in hands, (or established legitimacy to use them), they are unable to deter opportunistic behaviors of all types. This explains why public regulators are often involved in the oversight of the behavior of self-regulators. The latter need to be recognized by the public regulator to enhance their enforcement capability. In that case, the public regulator can make mandatory compliance with the self-regulation. Recognition establishes a balance between self/private regulators and the public one, which allows the latter to impose to the former constraints linked to the “general” interest (of course, when the public system of regulation is itself designed to guarantee that the collective interest, and not only the interest of a clique in power, is taken into account in public decision-making). In turn, the public regulator benefits from the expertise and the potential lower costs of regulation of private regulators.

This traditional balance is strongly challenged today. There are two reasons for this (Brousseau, 2007). First, with the globalization of many issues, the capability of public regulators to impose credible threats and to build the general interest is weakening due to their national scope. Second, the decreasing cost of decentralized enforcement due to digital technologies’ capabilities boost the capability of self-regulators to regulate without relying on national state enforcement capabilities. If access to information spaces can be technically controlled, then the need for last resort “physical exclusion” from the social game decreases.

It is important to point out that this shift towards a higher relative intensity of private and self-regulation as compared to public regulation is both due to decreasing costs of private enforcement and to a decreasing legitimacy of public regulators to establish the general interest. At the same time, private/self-regulators remain poorer holders of the general interest than public ones. This is simply due to less diversity in their constituency. By constitution, public regulators get mandate from a wider diversity of stakeholders than the private ones (see Brousseau & al., 2010). Consequently, with the extension of the relative scope of private regulations as compared to public ones, there is a high risk of capture of collective regulations to the benefits of some, especially against those who are marginalized with the rise of the globalization and of the information society.

Both issues are well highlighted in the contributions by **Sandrine Dusollier** and **Niva Elkin-Koren**. The former points out how DRM technologies lead to reshape the balance between the copyright holders and the users, to an extent that is questionable. This is also an argument made by Lessig in 2004, When he highlighted how DRMs turn most of the cultural public domain into private property. This leads to a massive transfer of wealth, which benefits those who hold the rights. Moreover, given the non-rival nature of information goods, the efficiency of this new “enclosure” movement is questionable. The usual reply to this last comment by those who applaud these evolutions is to point out that if a lower degree of privatization is more efficient, then it should come as a result of open competition. They see in the development of free/open source software and creative commons licenses the spontaneous reply to this enclosure movement. For those goods to which the tragedy of the anti-commons would apply, the spontaneous solution of the society should be the organization of self-governed communities involved in the provision and consumption of club goods; the access to which are largely open if no congestion constraints occur.

Niva Elkin-Koren, shows, however, that the efficiency of “laissez-faire” policies in matters of regulation is not totally convincing. By focusing on the creative commons licensing regimes, she nicely points out that decentralized regulations do not always have the same properties as centralized ones, even if the former are attempting to mimic the latter. To put it another way, creative commons licenses do not reproduce the public domain. They induce transaction costs, and since various regimes of licensing co-exist, they may result in inconsistencies in the rights that are circulated among agents.

The optimal balance between public and private regulations is, however, complex in a global and innovation-based society. Indeed, as pointed out above, and in many publications on global governance (e.g. Brousseau et al. 2011), the bodies and channels necessary to build and protect the collective interest at the global level are lacking. National governments tend to defend before all their sovereignty, and, in the best cases, the interest of their national stakeholders (Deibert, 2009). Private and self-regulations are built in narrow domains in the interest of the club members, without consideration of the generated externalities. In a context of permanent innovation — both in matters of technology and of uses —, the traditional orders are often no-longer able to reach their goals and ensure a sustainable level of stability, security and efficiency, thus, threatening the collective confidence and potentially hindering the diffusion of innovations and their benefits. This is why private actors might have incentives to provide regulations and norms considering the collective interest.

This is well illustrated by the contribution by **Deffains and Win** who compare the contrasted path of development of e-commerce on both shores of the Atlantic Ocean. According to them, the EU’s attempts to protect consumers in order to boost the development of e-commerce failed to provide the incentives to private operators to enhance the quality of their services. In the US, the responsibility for developing trust in e-commerce remained in the hands of on-line

sellers and platforms operators. This led them to compete in this field, and the authors consider that competition had a doubly positive effect. First, it led to services that efficiently protect consumers. Second, this boosted creativity on the e-commerce provider's side, resulting in a strong competitive advantage for US-based operators compared to their foreign competitors.

It should not be mechanically concluded, however, that the absence of public regulations always leads to efficiency. In the specific case just mentioned above, many other factors are at play. For instance, the early and strong development of the Internet in the US, the weaker concentration of the US populations as compared to the European ones that favor the development of at-a-distance sales, and the size and homogeneity of the US consumer market as compared to the fragmented multi-cultural Europe all contribute to explain why the dynamics of e-commerce emerged and developed initially in the US (Dedrick & Kraemer, 2006). Moreover, besides competition, the US liability laws and the related high level of judicial conflict, explain why there were incentives to efficiently deal with the security of transactions and with consumer protection. Incentives might have been different in Europe. Thus, such example is neither a demonstration of systematic regulatory failure nor proof of public regulation inefficiency. It is simply a reminder of the well-known fact that public regulations can lead in some circumstances, to undesired results.

1.6 Conclusion: Towards Guarantees Provided By the Open Dynamic of Governance Processes

Digital technologies provide their users with information management capabilities — especially in matter of instantaneous exchange, large scale sharing and long-term memory — that allow for a greater decentralization, flexibility and adaptability of governance. However the technology is neither the main cause, nor the solution to governance issues.

Indeed technology is opening options, not guaranteeing results. The “code” does not substitute to the “law”. Circumvolution/anti-circumvolution techniques and the loop they generate demonstrate that codes of conduct and conventions — which are norms guaranteed by mechanisms of retaliation in case of deviation — have to shape the use of the technology in order to guarantee the proper operation of the later. More generally all kind of organizational and institutional patterns interact with the development of the technology to make possible new practices, which in turn raise new challenges in matter of governance. An open-ended dynamic results from this by which new governance mechanisms are experimented and implemented by all kind of communities and actors.

These practices and related tools are appropriated by a wide diversity of stakeholders in the context of a more general call for more participative governance. This call is largely due to the weakening of national government (whose capabilities are hampered by globalization) and of their decreasing legitimacy (largely linked to the citizens call for more open societies). The raise of the knowledge-based society, characterized by high pace of innovation, also matters since most norms and more generally the established (economic, social, political) orders are challenged by new technical capabilities, social practices, and ability to coordinate. It results in the combination of decentralized collective action (at the infra national level) and of global networks, which initiates a head-on competition between a wide numbers of producers of norms.

These evolutions together with the decreasing cost of private regulation — essentially thanks to technical enforcement — change the balance of power between private and public regulators. The ability of the later to oversight the formers decreases. As a result a clear hierarchy of norms as well as the consideration of the interests of all stakeholders in the

society can no longer be guaranteed by a central and dominant actor/organization, widening the ability of private capture and inefficient foreclosure. In such a context, the collective interest is better guaranteed by open competition (and cooperation) among regulators; since network users benefit from exit options and counter challenging authorities. This leads to a regulatory landscape without a clear hierarchy of regulators and norms as well as a clear division of powers would guarantee efficient and balanced governance.

In the same time, the needed plasticity of governance mechanisms (to adapt to innovation and evolution of collective preferences) and the empowerment of individuals and communities in matter of governance call for a political oversight of the technological infrastructure of governance to ensure openness and neutrality. Political oversight cannot however rely on participatory processes only, because of their manipulability and high potential of capture by interests groups. Thus a well functioning divided government à la Montesquieu is also needed. The insufficient agility of parliament and courts as well as possible non-neutrality of the executive call however for a second level oversight by citizens, organized or not, conditioned by transparency guaranteed by a free press and the development of information networks. The three principles of governance highlighted by Rosanvallon — namely impartiality, reflexivity, and proximity — characterize well the sources of a renewed legitimacy of political governance fitting with the possibilities opened by digital technologies in the matter.

All these trends convey a fragmentation of the collective space into heterarchic systems of governance, more reticulous and biological than hierarchic and designed. They are characterized by redundancies, resilience and checks and balance; while also difficult to control and optimize. This is why, the resulting order does not draw from rational design, but rather from strategies of leadership, either political or technological. A key issue for all kind of actors is indeed to become “gatekeeper” able to structure communities, given the strong “first-mover advantage” and the “winner takes all effects” that characterize competition in an innovation based and networked society and economy. In that competitive framework, strategies of mutual recognition/legitimation among gatekeepers is also essential, which contribute to the heterarchization of governance. A consequence of these evolutions is the “doomed to failure” character of attempts to build a totally consistent and rational governance framework (à la Montesquieu), either on a public (the UN, the US) or on a private (Microsoft, ICANN) basis. On the one hand, governance is inherently characterized by inefficiencies due to overlaps, missing links, redundancies, maladjustments. On the other, the fear of a “big brother” able to monitor the system, whether benevolent or not, is a mirage.

In that context, where there are always all kinds of available exit strategies and balance of power, consensus-based modes of regulation become central. Consensus brings the notion of veto, hence adhesion. Norms cannot be totally binding. They are permanently negotiated and challenged, hence open to evolutions. Norms becomes references rather than rules. It allows innovation, while it raises also a security issue: non-stability and fuzziness of norms permanently challenge investments and status. This is the reason why the process by which norms evolve becomes central. Procedures frame the process of evolutions of norms, and then provide guarantees to the various stakeholders. Digital technologies play a key role here, since they provide tools not only to facilitate but also to guarantee on-going negotiations, to force and check compliance with the procedures, and to dynamically implement norms. They also contribute to guarantee fairness and “neutrality” of these processes, hence generating trust, both by automating procedures and keeping tracks of all actions.

These new mode of governance relying on consensual, evolving and soft norms apply even to the way States attempt to oversight the evolution of the key resources of the Internet.

Weakened government — characterized by bounded technical capabilities in the face of the cloud of innovators, of the global and decentralized character of the Internet, and of their shrinking legitimacy to overlook information exchanges — rely increasingly on externalization and cooperation to keep control of the information infrastructure; whatever their intentions are: to guarantee liberal and democratic constitutions, or to exercise despotic control. This translates into multiples interactions with firms, NGOs, IGOs, and all kind of communities, which both bound their governance capability, and are ways to divide power to guarantee checks and balances. Guarantees and capabilities tend to depend upon the multipolarity of governance and upon negotiations among “power-poor” rulers.

In a public vs. private perspective, the current trends raise important issues. Indeed, the increasing “privatization” of governance has two effects. First it develops “prevention” (digital fences, switching of users, etc) to punish potential deviant before any deviation occur. This might strongly hinder innovation and then threaten one of the pillars of economic growth and social evolutions. Second, one can observe a strong development of the need for conflict resolution, since decentralized innovation leads to all kind of maladjustments. This results in a weakening of existing rights because they tend to become “fuzzier” due to uncertainties in conflict resolutions and interdependencies