

**Science Diplomacy and Internet Governance:
Opportunities and Pitfalls**

By

Professor Robin Mansell

Department of Media and Communication

London School of Economics and Political Science

Email: r.e.mansell@lse.ac.uk

31 August 2017 (updated 21 April 2021)

In Press for publication 2021 in M. Marzouki and A. Calderaro (eds) *Internet Diplomacy: Shaping the Global Politics of Cyberspace*, Lanham, MD: Rowman & Littlefield.

Science Diplomacy and Internet Governance:

Opportunities and Pitfalls

Introduction

This chapter examines opportunities and pitfalls associated with intersections between what has come to be designated as science or digital diplomacy and research in the internet governance field. Attention is given to the potential for conflict among proponents of differing views of appropriate institutionalized governance arrangements when they become active in diplomacy initiatives. This chapter also considers potential outcomes when members of the internet governance research community engage in diplomacy with a view to tackling socio-political challenges associated with the digital environment. It focuses particularly on differing views about the authoritative status of scientific evidence on the impacts of internet governance policies and practices and of the status of researchers in decision contexts that affect state, private sector and civil society stakeholder interests in governing the digital ecology.

The digital environment, and particularly the internet, are increasingly sites of socio-technical controversy and governance institutions are evolving rapidly. This is an area in which research is expected to provide insight in the face of very rapid technological innovation and market development of digital technologies and applications. The priority of digital platform operators is to expand markets and profits through global data collection and processing and these companies are operating in highly concentrated markets characterised by power asymmetries (Taplin 2017; Mansell and Steinmueller 2020). As gatekeepers or intermediaries, they have the capacity to block or filter digital information and to process customer data in ways that result in corporate or state surveillance. The financial strength of some these companies gives them a near monopoly and, therefore, substantial self-regulatory decision making power. Their platform power is exercised through lobbying which enables them to influence whether and how they are regulated by state actors or held to account by

civil society actors (Couldry and Mejias 2019; Zuboff 2019).

The challenges facing those seeking to hold the digital technology companies to account are exacerbated by the framing of mainstream economic science which suggests that formal regulation by states should be considered only when there is scientifically verified evidence of narrowly defined market failure, validated according to the norms of the prevailing science paradigm. Such evidence is extremely difficult to produce and typically is contested because of the complexities of the companies' operations and the digital market structure (Daly 2016; Moore and Tambini 2018). The interests of states, at least in the Western world, are both to secure access to data about their citizens for security purposes and to achieve protections for citizens' fundamental rights to access digital information, freedom of expression and individual privacy (UNESCO 2021). These conflicting interests are making it increasingly difficult to ensure that internet governance arrangements protect citizens' interests.

Diplomacy and, specifically, science diplomacy, as a modality through which states can pursue their interests in tackling socio-technical challenges in the digital environment, is attracting increasing attention. In Europe, for instance, European Commissioner Moedas, Commissioner for Research, Science and Innovation, has emphasised the role of science diplomacy in responding to issues raised by climate change and the spread of infectious diseases. The results of scientific research, including social science, are treated in this context as a resource that can be deployed to exercise 'collective responsibility in a spirit of international solidarity ... to solve common and complex global challenges' (Moedas 2016, 9), although it may be argued that science diplomacy does little more than signal a need for international cooperation (Rüffin 2020).

The digital environment is a key site of socio-technical challenge that is linked to economic competitiveness, security and human rights in the European Union's strategic agenda (EC 2020) and similar linkages are present in other countries and regions around the

world (UN 2019). Researchers working in the internet governance field are engaging with the diplomatic community as numerous multistakeholder commissions and initiatives are launched to tackle the risks and harms associated with the digital environment. In this chapter, the focus is on science, or what may be referred to as ‘digital’, diplomacy in relation to governing the consequences of the internet and digital innovation. It does not address another sense in which the term digital diplomacy is used, that is, in reference to the use of digital technologies by the diplomatic community to support their communicative strategies (Bjola and Zaiotti 2021; Cerf 2020; Huang 2020).

The next section outlines contending theoretical perspectives on diplomacy and its links to the prevailing paradigm of science, and to the less dominant tradition of social constructivism in the social sciences. The third section provides illustrations of the digital environment as a site of socio-technical controversy. This is followed in the fourth section by a discussion of the emerging entanglements of science and governance and their association with alternative institutional models for governing through conferring authority, giving particular attention to multistakeholder forms of governance. This discussion is complemented in section five by a focus on conditions that affect expectations about the influence of research produced by internet governance researchers when they engage in diplomacy. In the conclusion it is argued that the intersection of internet governance researchers with science or digital diplomacy does have the potential to influence governance outcomes in ways that may garner support for a digital environment in which citizens’ fundamental rights are better respected, but it also acknowledges the pitfalls of such engagement.

Diplomacy and Science and Technology

The historical relationship between diplomacy and science (and technology) is ambivalent insofar as Nye’s (1990) notion of soft power diplomacy, as distinct from hard or coercive power exercised by the military and in the economic sphere, includes the scientific,

the cultural and the ideological. Nye (1990, 167) argued that diplomacy involves efforts to make state power 'seem legitimate in the eyes of others'. It is not neutral because it involves choices about values (Nye 2004). In the context of governing scientific and digital technological innovation, this implies that the engagement of researchers with diplomacy involves value choices and decisions about the authoritative status of research evidence as well as the respective authority of state, private sector and civil society actors within the institutions developed for governance.

From the dominant perspective, the processes and practices of diplomacy are understood to occur in the context of a 'cosmopolitan democracy' where the emphasis is on the rule of law, representative decision-making and formal accountability for decisions (Held 1995). Hierarchical arrangements for governance mean that certain stakeholders are accorded greater authority than others, and some actors will be excluded from decision making processes. Power relationships among state, corporate and civil society actors, including individuals with research expertise, are theorised in different ways, but power is typically conceived to work through pluralist relationships among actors who are assumed to engage with each other on an essentially level playing field. It is assumed that multiple viewpoints can be expressed, consensus achieved, and policy introduced that is regarded as the legitimate expression of the authority of the engaged actors (Lindblom 1990). This neo-pluralist notion of power provides a basis for assuming that a variety of actors – state, corporate and civil society - is able to claim legitimacy in governance processes and to participate effectively in informing the outcomes. A pluralist view of power is predominant in the subfield of science diplomacy, defined broadly in the context of the United States, 'as scientific cooperation and engagement with the explicit intent of building positive relationships with foreign governments and societies' (Lord and Teurkian 2009, np). In relation to the governance of the 'internet economy' in the American context, Zysman and Weber (2001, 15) found that associations between research in this area and diplomacy produce conflicts over 'fundamental

values and basic choices about markets, community, and democracy’. In the European context, increasing attention is focusing on tensions between the protection of commercial or market values and public values in the digital innovation space (van Dijck et al. 2018).

The dominant view of science diplomacy is consistent with a prevailing view of scientific research in which ‘scientific values of rationality, transparency and universality are the same the world over’ (Royal Society 2010, vi). Science and social science are seen as providing ‘a non-ideological environment for the participation and free exchange of ideas between people, regardless of cultural, national or religious backgrounds’ (Royal Society 2010, vi). This view grants authoritative status to all those who have the appropriate professional qualifications and it allows scientists to insist on their independence from political, economic or social influences within diplomacy processes. It is this construction of science that the United Kingdom’s Royal Society employs when it characterises ‘science in diplomacy’ as ‘informing foreign policy objectives with scientific advice’ which is valued for its contributions to an evidence base that can be used to support political decisions (Royal Society 2010, v). ‘Diplomacy for science’ is seen as facilitating international science cooperation. ‘Science for diplomacy’ is then treated as using science cooperation to improve international relations between countries. In this context, science is depicted as value free, consistent with the prevailing conception of scientific inquiry. Scientific evidence is regarded as a resource that is ‘complete’ or final and ‘the most objective thing known to man’ as Einstein (1934/2009, 112) put it.

While the processes of scientific inquiry are assumed to be open to discovery and drawn from multiple sources, openness is not regarded as an unqualified good in this paradigm since ‘there are legitimate boundaries of openness which must be maintained in order to protect commercial value, privacy, safety and security’ (Royal Society 2012, 9). This is deemed to be the optimal way to ensure that scientific results are ‘assessable so that judgements can be made about their reliability and the competence of those who created

them' (Royal Society, 2012: 7). These institutional norms serve as a means of maintaining the privileged authoritative position of those researchers who adhere to the norms of this scientific paradigm (David et al. 2010), with the result that there is reticent among scientists to disclose all that is known. The obligation is to disclose only enough information to enable others, such as diplomats, to interrogate research results (David and Steinmueller 2013). The result is a hierarchy that is maintained between those deemed qualified to offer authoritative views and those whose views are either discredited or downplayed. This hierarchical system also helps to preserve the notion that scientific evidence offered in the conduct of diplomacy is not associated with normative judgements.

In contrast, an alternative view holds that diplomacy always operates within the framework of a 'discursive democracy'. In this context, governance decision-making is understood to be embedded in social and political discourses among multiple stakeholders – states, companies and civil society - with the aim of encouraging the articulation of diverse discourses and reaching decisions that resolve contradictory interests (Dingwerth 2014). In this view, however, diplomacy is understood to be associated with asymmetrical structural power which mediates governance through 'conceptual systems and cultures – forged and modified through institutional, organizational, and technological mediators' (Comor 1999, 119). This asymmetrical power can operate to suppress or negate the broader interests of civil society actors in designing governance institutions that aim to achieve social and economic justice. In this view, when diplomacy intersects with science and technological innovation, it is expected to privilege the power of the state or corporate actors and to produce outcomes that sustain the global capitalist economy (Chenou 2010; Strange 1998).

From a Foucauldian-inspired perspective on power relations, the engagement of science with diplomacy can therefore be expected to normalise existing asymmetries of power among interested stakeholders and to shape perceptions of the most appropriate governance arrangements to favour prevailing scientific norms that confer authoritative status

on research evidence. In effect, researchers engaging in diplomacy will be disciplined to prefer governance arrangements and outcomes that replicate or reinforce societal inequalities (Comor and Bean 2012). Thus, when these power asymmetries are taken into account, neither the conduct of scientific research, nor the contributions of research expertise to diplomacy, can be assumed to be independent or value free. Notwithstanding their frequent claims to independence, researchers working in the prevailing scientific paradigm are acknowledged from this critical perspective to be providing normative interpretations of their research findings. These interpretations may align with state, corporate or civil society interests and this is likely to yield tension and conflict (Van Langenhove 2016; Gieryn 1983).

The predominant depiction of science and its authoritative status as ‘distinctively truthful, useful, objective or rational’ is strongly contested in other traditions in the social sciences with implications for the engagement of internet governance researchers in diplomacy. In contrast to the prevailing view of science, in this tradition scientific knowledge is understood to emerge through a socially co-constructed process (Mackenzie and Wajcman 1999). In this sense, the outputs of science are always ‘in the making’ and science is ‘an end to be pursued’ (Einstein 1934/2009, 112). Science is not a process of producing universally valid ‘truth’ claims. Research evidence produces knowledge that is co-constructed by multiple actors through practices characterised by Callon as ‘research in the wild’. In this framing, theories and the interpretations of empirical results are intricately interwoven with political, economic, cultural and social values and goals and all knowledge construction is assumed to be infused with power asymmetries. It is ideological (Gieryn 1983) and, as Dewey insisted (Boydstone 1989), researchers cannot escape from the normative implications of their work. Thus, the scientific community is understood to operate as a change agent in society rather than as a neutral bystander. This is because researchers are understood to make choices about the salience of competing theoretical paradigms, acceptable interpretations of

their research results, and they inevitably privilege certain values and outcomes (Cammaerts and Mansell 2020).

This social constructivist view of scientific practice developed in parallel to the prevailing norms of science in the post World War II period. The constructivist view of knowledge generation encourages the deconstruction of the rationalist discourse of mainstream science and it considers asymmetrical power relationships among actors engaged in diplomacy. In relation to research on socio-technical controversies such as those encountered in the digital realm, researchers can be expected to draw upon a variety of social science disciplines to frame their empirical work with a view to accumulating insights into the ways in which scientific and technological innovations are shaped by cultural, social, political and economic factors (Bijker et al. 2012). Multiple actors from a wide range of stakeholder groups are expected to influence, for example, whether new digital technologies emerge from the laboratory, how they are brought to the market, and their socio-political and economic consequences. In addition, in privileging the co-construction of knowledge, researchers working in this tradition tend to favour inclusive, non-hierarchical research and governance practices. This means they often have a greater affinity with the interests of citizens in ensuring that policies designed to address socio-technical controversies are responsive to their needs and priorities, in contrast to the dominant scientific paradigm which asserts that research practices are value free.

Science or digital diplomacy is not a new phenomenon, but it is achieving a high profile in the face of global policy challenges and policy makers have a growing need to understand scientific evidence. Scientists and social scientists are increasingly being called upon to contribute to national, regional or global policy in issue areas such as climate change, gene therapy, genetically modified organisms, health, cybercrime and the uses of artificial intelligence and robotics. Debates in these areas often are politically charged and public controversy can lead to claims that science is not sufficiently insulated from politics (Jasanoff

1990; 2021). The authoritative status of research evidence and of researchers is increasingly being called into question and the ‘science-policy relationship is sometimes difficult and occasionally dysfunctional’ (Sutherland et al. 2012, 1).

This is so not only as a result of conflicts between communities of scientists who adhere to different paradigms of science, but also because some researchers are basing their claims to authority partly on their engagements with ‘researchers in wild’, that is, with a wide range of citizens (Callon and Rabeharisoa 2003). They also frequently are employing research practices that are underpinned by qualitative methods (or mixed methods) which are seen by those adhering to the predominant science model as less robust than quantitative experimental methods as means of validating research results. These non-dominant approaches are frequently regarded as producing evidence subordinate to that produced by formally accredited science (Stodden 2010). As Callon (2003) points out, ‘faced with the exceptional’ demands arising in the face of global socio-technical controversies, research-based insight may be generated by researchers who do not know each other well, for instance, through crowdsourcing, and who have a wide variety of methodologies for validating the authoritative status and interpretation of their knowledge and its implications for policy (Callon 2003).

Although scholars working in the ‘subordinate’ tradition argue that it is possible to ‘to maintain a careful balance of scientific advice, stakeholder participation, public debate, and political discretion, which is crucial for handling the risks and benefits of modern technological cultures in a democratic way’ (Bijker et al. 2009, 5), the social constructivist tradition in the social sciences is not immune to controversy. This is especially so with regard to the authoritative status of evidence and the normative commitments researchers bring to the diplomatic process since they often seek to improve governance institutions or to invent new ones. To succeed in implementing their ideas, they muster political support and this results in entanglements with the dynamics of asymmetrical power relations among state,

corporate and other civil society stakeholders and in conflicts over the values and goals that should receive priority in a given issue area such as internet governance (Franklin 2013a).

In summary, a pluralist view of the power which informs the dominant view of diplomacy is well-aligned with the prevailing paradigm of science, but its hierarchical norms and conventions are being contested in multiple areas. This is especially the case as the status of scientific inquiry is declining in the popular imagination in Western democracies (Bijker et al. 2009), notwithstanding claims to science-led policy making and the politicization of science in the face of the Covid-19 pandemic (Jassanoff et al. 2021). This context needs to be considered when the implications of engagements between researchers in the field of internet governance with science or digital diplomacy are examined.

The Digital Environment as a Site of Socio-Technical Controversy

Conflicts around the governance of the digital environment are present globally, although the structures and processes for addressing them are specific to institutional arrangements in each region or country (Brousseau et al. 2012; Brown and Marsden 2013; DeNardis 2014; Marsden 2017). In the global context, efforts to preserve an open, fair and transparent internet that is consistent with the interests of citizens are being challenged in multiple ways and often around the concept of sovereignty (Mueller 2020). ‘Internet freedom’ is declining as governments seek access to data from social media and apps (Rogers and Luck 2017) and the market for abusive online content is growing (UN 2020). Internet fragmentation resulting from the absence of global agreement on internet governance issues is exacerbated when countries adopt policies and practices that are inconsistent with citizens’ fundamental rights (UNESCO 2021). Fundamental rights to access digital information are curtailed, for example, when countries block access to social media (Marchant and Stremlau 2020; Shahbaz and Funk, 2020).

Controversies over governance and its outcomes in the digital environment generate struggles over the authoritative status of research contributions provided by adherents to

different scientific norms and lead to divergent views on institutionalising governing authority as well as about the power of relevant stakeholders, including the state, companies and civil society. Different epistemologies or paradigms of science influence what comes to be regarded by the diplomatic community as standard evidence and as ‘normal’ patterns of interaction and ways to resolve disputes (Nelson and Sampat 2001). In the dominant science community and among state and large corporate stakeholders, the preferred structure of governance arrangement can be described as constituted authority which involves formal and hierarchical norms and procedures for accumulating authoritative knowledge (Mansell 2013; Powell 2015). In the constructivist traditions of the social sciences, in contrast, the accepted norms and procedures for conferring authority on research evidence and researchers are less formal and non-hierarchical. They are more fluid and can be characterised as adaptive forms of authority. These distinctive approaches give rise to conflict which is especially visible when value conflicts are present and is accompanied by claims and counterclaims in governance settings about the authoritative status of research evidence (Cammaerts and Mansell 2020).

The instability of governance arrangements in the digital environment illustrates the conflictual nature of these socio-technical challenges and the politicisation of scientific evidence. When, for example, President Trump signed a Congressional joint resolution reversing the privacy rules that were to have applied to internet access service providers and had been put in place by the Federal Communications Commission (FCC) (2016), the rules had been informed by a wealth of research evidence. If the rules had come into effect, they would have required companies to obtain customers’ permission prior to the use of data designated as ‘sensitive’, a move designed to provide improved protection of personal data. Some privacy protections remain in place (Drye 2017), but the multi-layered and interlocking ownership structures of the companies in the digital market mean that threats to privacy are now considerably greater than they would have been if the privacy rules had come into effect.

The authoritative status of research evidence provided by proponents of the privacy rules was contested and, in this instance, overturned. This national set of deliberations also was influential in creating a discourse that found its way into global contexts and diplomacy initiatives (Hofmann 2020).

Within countries, the governance arrangements that historically have been used to protect the public interest in the face of the market power of digital network and service providers through regulatory intervention are increasingly open to challenge. States do, however, sometimes intervene to protect citizens' fundamental rights as in the case of efforts to preserve an open internet. For example, the FCC introduced network neutrality rules to secure an open internet, notwithstanding claims that this would jeopardise the competitiveness of internet access service providers. These rules were underpinned by a research evidence base supported by some researchers and criticised by others, all of whom made claims to the authoritative status of their evidence. After regulatory proceedings and court challenges, the companies providing access to the internet were required to give equitable treatment to internet traffic (FCC 2015). The instability of this form of governance was confirmed by the move by then FCC Chairman, Ajit Pai, to overturn the FCC's 2015 order (McKinnon 2017). This change favoured the interests of some of the largest companies involved in content provision and data transmission, and of the government, because it allowed them to discriminate among different types of digital information for commercial or state security purposes. Similarly, any future change in position on the network neutrality issue will rely on research evidence and the research community will be called upon to make claims to the authoritative status of their competing theories, empirical methods and results. This was an instance of the contested entanglement of science with the process of governing in the digital environment and it too generated a discourse which can be, and sometimes has been, appropriated globally (Broeders and van den Berg 2020). This entanglement of science and diplomacy is visible, for example, in the contemporary geopolitics of 5G technology

deployments which are framed by a trade war between the United States and China and by claims and counterclaims about the impact of network virtualization on national security (Plantin and Mansell 2020; Tang 2020).

Emerging Entanglements of Science and Governance

The prevailing paradigm of science and state or corporate-led governance fosters structures and processes of deliberation on socio-technical controversies that typically favour constituted authority. Recently evolved governance institutions concerned with the internet and the broader digital environment, however, are more closely aligned with the norms of adaptive authority. Those who affiliate themselves with these norms are more likely to privilege values of openness and transparency than are those who affiliate with governance arrangements aligned with constituted authority (Mansell 2013; Mateos Garcia and Steinmueller 2008). In addition, the diplomacy institutions of constituted authority are starting to embrace some of the features of adaptive authority with implications for the outcomes of the interpenetration of research on internet governance and science diplomacy. In turn, this has implications for the authoritative status of the stakeholders (state, corporate and civil society) and, in the case of researchers, of their scientific evidence base. This intermingling of norms and practices and contests over what should be 'standard' patterns of interaction is occurring in multiple jurisdictions worldwide with consequences for whether citizens' interests are taken into account in resolving socio-technical controversies related to the digital world.

There are numerous modalities of governance in the internet domain and the way in which authority is institutionalised differs considerably (Kleinwachter 2017), with some arrangements being closer to constituted authority and others to adaptive authority norms and practices. These differences are visible in multistakeholder forums where stakeholder participation ranges from the Internet Corporation for Assigned Names and Numbers (ICANN) model where governments are involved in advisory capacities, to the World

Summit on the Information Society (WSIS) where non-governmental stakeholders were involved, but only in consultation, and the Internet Governance Forum (IGF), where multiple stakeholders participate, but without formal decision making authority. Internet governance issues (e.g. the digital economy, cybersecurity and human rights) are addressed by organisations including the International Telecommunication Union, the World Intellectual Property Organization, and the United Nations Educational, Scientific and Cultural Organization, as well as the World Trade Organization and the World Economic Forum, all of which have characteristics of constituted authority despite their appropriation of the term, multistakeholder (Kleinwachter and Almeida 2015; Pohle 2016). A complex system of global governance is developing which can perpetuate, maintain or challenge hierarchical power among the stakeholders in different contexts (UN 2019). The locus of authority and the perceived authoritative status of researchers depend on which norms and practices designed to confer authority are valued and privileged. All of these governance arrangements are increasingly drawing upon research evidence and, as such, they represent a diverse set of interconnected instances of science or digital diplomacy.

Internet governance research and practice can be defined narrowly in relation to internet resource management or, more broadly, in relation to the governance of content production and online interaction (Brousseau and Marzouki 2012). The adaptive authority bias is present in this dynamically evolving area which favours multistakeholder arrangements in which transparency and the equitable involvement of multiple stakeholders are valued. The result is that less attention may be given to the dominant scientific norms for establishing professional authority and there is greater openness and validation for the views of citizens than is typical in the constituted authority view of governance. Akin to commons-based forms of organisation (Benkler and Nissenbaum 2006; Poteete et al., 2010), the hallmark of the newer forms of multistakeholder internet governance is collaboration, dispersed initiative, fluidity and rapid action. These models of internet governance are

evolving largely from the bottom up and emphasise the principles of accountable forms of participation, ideally to achieve ‘hybrid, bifurcated, plurilateral, multi-level, and complex modes’ of governance (Backstrand 2006, 468). The challenges of achieving this ideal on a ‘transscalar’ and ‘transcultural’ global basis are considerable (Scholte 2014; 2002) and norms are being devised to provide means for managing conflicts about where authority is, or should be, located and what evidence counts as authoritative knowledge.

With the internet as a central component of the material and immaterial infrastructure for global mediated communication, the status of researchers and research evidence is crucial because of its influence over the democratic legitimacy of the institutions involved in the social ordering of a digitally-enabled society. As Franklin (2013a, 183) puts it, ‘like Rip Van Winkle, government regulators have discovered that things have changed and they no longer call the shots in terms of internet design, access, and use’. They do not have uncontested recourse to assertions about the authoritative status of scientific research evidence that they once called upon to sustain outcomes favouring state and corporate interests over those of citizens.

When researchers are called upon to participate in some of the governance arrangements that are characterised as multistakeholder, however, there is often only a weak commitment to reflexive or inclusive practice consistent with adaptive authority. For example, when multistakeholderism is referred to in a report prepared for the World Economic Forum, it is noted that ‘there are strong divergences of views between governments and citizens about whether MSGs [multistakeholder groups] are near angels who can deliver everything or whether they are inherently dangerous’ (Gleckman 2016, 94). Here, lobbying and advocacy to provide ‘independent’ knowledge to governments is deemed appropriate for consultative processes, but the authority to take decisions about how to address global problems is restricted to stakeholders adhering to the constituted authority model.

A partial incorporation of the norms and values of adaptive authority is typical in other multistakeholder initiatives which are implicating researchers in science or digital diplomacy. For instance, the G20 Hangzhou Summit's Global Digital Economy Development and Cooperation Initiative was welcomed by some members of the internet governance community because of its commitment to 'a multistakeholder approach to Internet governance, which includes full and active participation by governments, private sector, civil society, the technical community, and international organizations, in their respective roles and responsibilities' (G20 2016, para 5). In this case, however, features of constituted authority governance that confer primary authoritative status on state actors were retained. The G20 countries called for open, transparent, inclusive, evidence-based policy making soliciting comments from public and private stakeholders, but consultation was positioned only as a prelude to state decision making. It should occur '*before* laws, regulations, policies and other instruments are deliberated, developed and implemented' (emphasis added) (G20 2016, para 14).

Similarly, the non-governmental Global Commission on the Stability of Cyberspace established to tackle cyber warfare was envisaged as a global multistakeholder initiative. The aim was 'to convene key global stakeholders to develop *proposals* for norms and policy initiatives to improve the stability and security of cyberspace' (emphasis added) (GCSC 2017). Nye (2017) suggested that the Commission might have a better chance of reaching agreement on the governing norms for the use of cyber weapons than the United Nations Group of Governmental Experts because it does not grant states ultimate authority. He regarded this as potentially opening up a space for deliberation among a wider set of stakeholders, including the research community. However, in line with the predominant view of science diplomacy, the Commission received proposals from scientific experts and other stakeholders, while decision making authority rested with the state members for the production of the Commission's final report (GCSC 2019).

The state or corporate actors have principal authority as well in the model proposed by the Global Commission on Internet Governance. Its *One Internet* report called for an arrangement ‘in which affected stakeholders who want to participate in decision making can, yet where no single interest can unilaterally capture control’ (GCIG 2016, np), consistent with an inclusive pluralist notion of power. This suggests an aspiration towards an adaptive authority model of multistakeholderism where all stakeholder views and scientific evidence receive attention. The report insisted that global internet governance should be collaborative, decentralized, open and evidence-based. It is acknowledged, however, that geopolitical considerations mean that, ultimately, internet governance is about ‘the distribution of power in the political realm’ (GCIG 2016, np), a realm which is characterised by power asymmetries. Another illustration of the privileging of constituted authority in the digital environment is the European Commission’s use of its High Level Group of Scientific Advisors to gather scientific opinions on cybersecurity issues. In this instance, the science advisors argued for principles such as transparency, care towards customers and shared responsibility among stakeholders, consistent with a multistakeholder model of governance (EC 2017). However, the primary locus of decision making authority remains the hierarchical apparatus of the European Union and the dominant paradigm of science was privileged.

A pluralist notion of power informs many of these kinds of initiatives to devise novel forms of governance insofar as multiple stakeholders are admitted to processes of consultation. This opens up a space for researchers who adhere to the hierarchical standards of science to offer their evidence and it occasionally admits those who work with critical theories in the constructivist tradition of science. However, decision making authority persists in resting with the state and/or the digital technology and service companies. In practice, power is reconstituted asymmetrically and hierarchies persist, consistent with the constituted authority approach, notwithstanding some evidence of the presence of elements of the adaptive authority model. Emerging forms of multistakeholder governance retaining features

of constituted authority are especially common when choices about values have to be made or economic resources are at stake although, on occasion, there may be some convergence in values in areas such as a common goal of limiting infringements of fundamental human rights (DeNardis 2020).

The transition from the contract between ICANN (a multistakeholder governing authority institution aspiring to adaptive authority) and the US Department of Commerce (National Telecommunications & Information Administration - NTIA) (a constituted authority institution of the state) is an illustration of this. The contract enabling Internet Assigned Numbers Authority (IANA) functions to be performed expired in 2016. The successful transition to the multistakeholder organisation, ICANN, to enable it to perform these functions under its own authority was regarded as an instance of assuring the accountability of all stakeholders including businesses, academics, technical experts, civil society (and researchers) and government stakeholders. The process of transition involved the constituted authority of the courts, however. Before the transfer date, President Elect Trump and Republican Senator Ted Cruz indicated their opposition to the proposed arrangement, claiming that the United States government needed to retain its contractual interest to preserve the stability of the internet and its governance (Eggerton 2016; ICANN 2016). Their argument was dismissed by the court and the transition was completed. However, the outcome might instead have favoured the constituted authority of the state, highlighting the persistence of struggles for power in the internet governance domain between state and civil society actors.

In other areas of the digital environment, governance is less by the state, and more by the private sector which exercises its authority to determine the outcomes and consequences of scientific and technological innovation. For example, internet protocols are often treated as technical issues and decisions about implementation are taken by the private sector with little or no oversight by multistakeholder institutions. The Domain Name Service RPZ (Response

Policy Zone) technology is an illustration. This technology allows an internet name server administrator to overlay customised information on top of the global Domain Name System (DNS), enabling responses to queries that differ from those that would otherwise occur (Vixie 2010). This has been deemed to be outside the remit of the multistakeholder organisation, ICANN, since ICANN does not have a mandate to intrude into matters which concern content, consistent with the principle of an open internet. A draft Internet Engineering Task Force document states that this technology ‘merely formalizes and facilitates modifying DNS data on its way from DNS authority servers to clients’ (Vixie and Schryver 2017). Yet this technology can be used by governments and companies to introduce content blocking by stopping access to certain servers, redirecting users to online walled gardens, or defending internet servers against cyber attacks. The technology is being provided in the market by companies such as DissectCyber, Spamhaus and ThreatStop. It has a socio-technical ordering or governing effect with the potential to be used to fragment the internet and it may be used to abrogate the rights of internet users to access content. The results of the dominant paradigm of science and technological innovation feed, in this case, into a closed system of governance with results supporting the private sector’s interest in fragmenting the internet as well as state interests in controlling access to content. Treated as an instance of science diplomacy, albeit with the private sector in the lead, this example is indicative of the use of science to achieve normative outcomes that support prevailing power asymmetries.

In view of the variations in scientific norms and in establishing authoritative governance arrangements, the extent to which specific internet governance arrangements are effective in reconciling or accommodating conflicting stakeholder interests must be an empirical question (Mueller 2010; Cammaerts and Mansell 2020). Research on multistakeholder governance structures and processes indicates that it favours the interests of corporate actors due to their power in the market and that, in fact, it grants ‘private interests

legitimacy in public policymaking next to elected governments in the process' (Sarikakis 2012, 151). Although internet governance arrangements may more often be characterised as heterarchical (Brousseau et al., 2012) and be more reflexive (Hofmann et al., 2016) than in other sectors, this does not guarantee that an uncontested deliberative space will be created. This has implications for how research in the internet governance field is likely to be received in the context of science or digital diplomacy.

Internet Governance Researcher Contributions to Diplomacy

When internet governance researchers working in the constructivist traditions of the social sciences engage in science or digital diplomacy, they confront the prevailing norms of constituted authority. As argued earlier in this chapter, the dominant institutional norms of science diplomacy are essentially hierarchical in the way they confer status on researchers and their evidence. When researchers working in the internet governance field embrace normative positions with respect to socio-technical controversies involving the digital environment such as fundamental rights to freedom of expression, privacy and access to digital information, state and corporate actors will seek to 'route around' them by ensuring that the authority of evidence, decisions and their enforcement continues to reside with the state or the private sector (Butt 2016; Mansell and Steinmueller in press). Understanding how this happens requires research consistent with adaptive authority norms, that is, constructivist approaches, to lay bare 'the micro practices of governance as mechanisms of distributed, semi-formal or reflexive coordination, private ordering' (Epstein et al. 2016, 4) or, as Milan and Ten Oever (2017) put it, to reveal the benefits of internet governance arrangements that are designed as a 'a normative "system of systems"'. These approaches aim to be consistent with adaptive authority models and with attempts to achieve equity among all of the stakeholders.

Understanding how more informal adaptive models of governance operate requires an examination of the performative agency of civil society stakeholders, including the scientific

experts, who participate in diplomacy when they aim to influence internet or digital governance arrangements and outcomes. Revealing the norms and power dynamics of ‘governance by social media’ or ‘governance by infrastructure’ (DeNardis and Hackl 2015; DeNardis and Musiani 2016), can be used to highlight the corporate interests that typically are accorded dominant authoritative status in governance decisions. Researchers working in these traditions are providing evidence of how novel outcomes can emerge from the interactions of multiple actors with heterogeneous interests. Much of this work examines multistakeholder institutions such as ICANN or the discourses of stakeholders involved in, for example, the WSIS or the IGF (Epstein et al. 2016; Pohle 2016). However, these institutions that play a role in shaping internet governance have a greater affinity to elements of adaptive authority than do other institutions in the digital environment such as regulatory agencies which are increasingly active in governing digital technology systems (EC 2020; Mansell and Steinmueller 2020). van Eeten and Mueller (2013, 730) note the need for research that provides insight into ‘environments with low formalization, heterogeneous organizational forms, large number of actors and massively distributed authority and decision-making power’; environments consistent with adaptive authority. However, governance in the digital environment continues to occur in settings where the norms of constituted authority are privileged. The result is that the asymmetrical power of states and companies is reconstituted, notwithstanding the appropriation of the term ‘multistakeholder’ by some of these actors. As Chenou (2010, 26) observes ‘the marks of a pro-business, technocratic, a-political and neoliberal power elite can still be found today in the debates on the future of Internet governance’.

Researchers in the field of internet governance who engage in science diplomacy also face the pitfall of co-optation. Franklin (2013b, 36) points out that engagement runs the risk of being ‘disciplined into a post-Westphalian frame of institutional power’. When efforts are made to preserve constituted authority (of state or company) in contexts where the internet

governance research community seeks to uphold citizens' fundamental rights, state and corporate perceptions of threat and vulnerability are heightened (Cammaerts and Mansell 2020). Science or digital diplomacy can become little more than an effort to persuade others to empathise with state policies since 'even an ethically informed mode of engagement cannot sidestep power asymmetries' (Comor and Bean 2012, 215). Diplomacy, drawing instead upon the results of internet governance research in the adaptive authority mode of science may be more open and transparent as a result of multistakeholder governance forums. However, although some digital companies are encouraging a more open circulation of information and the involvement of new voices (Dutton 2017), the potential for conflict between stakeholders favouring constituted authority and those favouring heterarchical adaptive authority institutions of governance is substantial.

This does not mean that the outcome of struggles for authority inevitably will favour states and the corporate actors. Parkinson (1958, 8) insisted that 'there is, in fact, no historical reason for supposing that our present systems of governance are other than quite temporary expedients'. They are always contested. And, following Slaughter (2004), in a 'disaggregated world order', fluctuations in the roles of states and intergovernmental organisations are common (Schemeil 2013). These fluctuations should be expected with respect to the authoritative status of digital technology companies and concerned civil society actors, including the scholarly community, and adversarial conflict can be generative of new sites of hegemony (Cammaerts and Mansell 2020). Greater participation by internet governance researchers in science or digital diplomacy entails their immersion in agonistic confrontations where stakeholders with oppositional goals are operating in a contested adversarial space (Mouffe 2013). In the case of digital socio-technical controversies, this dynamic space can yield re-articulations of power that generate new, albeit temporary, hegemonies in which civil society stakeholders may be able to establish their authoritative status and achieve changes consistent with citizens' interests.

Conclusion

Internet governance researchers who argue for the protection of citizens' fundamental rights have opportunities to bring about change when they engage in science or digital diplomacy with other stakeholders in the struggle to establish a hegemonic position that differs from prevailing interests of the dominant digital platform companies and of states. The prevailing hegemony of hierarchical science and constituted authority-styled governance institutions tends to exclude or downplay the significance of the views of those (such as practitioners, those who contribute to 'research in the wild', and researchers aligned with the constructivist tradition) who are not accredited in accordance with the prevailing paradigm of science. Nevertheless, contestations over the authoritative status of stakeholders and research evidence have the potential to mobilise momentum towards changes in internet and digital governance such that fundamental rights of citizens can be privileged over or alongside the rights of other stakeholders.

The engagement in diplomacy by internet governance researchers working in the constructivist social science tradition brings them into close proximity with the norms and values of constituted authority institutions of the state, the corporate world and the hierarchical science norms with the risk that their evidence will be devalued. The evidence they provide may help, however, to persuade those whose preference is for constituted authority governance arrangements and outcomes that the digital world is a complex evolving system. It is co-constituted by multiple actors, albeit within a structure of asymmetrical power relations in the capitalist economy. State and corporate representatives who engage in science or digital diplomacy to address challenging digital controversies might come to better understand why controlling the internet and the wider digital environment through hierarchical norms and practices is ineffective as a result of their encounters with internet governance researchers whose evidence probes and explains this complexity. Their engagement with researchers bringing insight into the viability of adaptive authority

governance arrangements is likely to lead to an accumulation of evidence providing greater confidence in the outcomes of adversarial adaptive authority governance processes undertaken by democratic multistakeholder institutions. The dynamics of these interactions are yielding new hegemonies within the sites of internet governance and, in this way, as Williams (1983, 268) argued, ‘once the inevitabilities are challenged, we begin gathering our resources for a journey of hope’. In this instance, the hope must be for the construction of a digital world through the soft power of science or digital diplomacy that, ultimately, develops in the interests of citizens in equity, openness and inclusiveness.

The norms of a non-ideological and universally authoritative science that seems to yield insight into optimal ways of governing the digital world in line with constituted authority governance norms will persist. Conflict is likely to grow, however, as diplomats turn to the internet governance research community for assistance in tackling global digital challenges. Diplomats will expect scientifically validated research consistent with the predominant notion of a ‘completed’, value free, science and this will intensify agonistic relationships among the stakeholders. However, it is also likely to generate new opportunities for the emergence of novel governance structures and practices some of which may be consistent with adaptive authority approaches to governance.

In other areas where researchers address socio-technical controversies in fields such as climate change or disease prevention where conflict arises, constructivist social science researchers have proven themselves to be influential when they adhere to ‘technologies of humility’ in their promotion of discourses favourable to democratic deliberation and equitable outcomes (Jasanoff 2003, 227). The pitfalls associated with co-optation through engagement in diplomacy as a result of a normalisation to the hierarchical values of constituted authority as a ‘standard’ pattern are considerable, but they can be resisted through the reflexive practice of researchers and other civil society members, consistent with the tenets of the constructivist tradition. When they are resisted effectively, there is a greater

chance that evidence-based approaches to digital governance can become supportive of policies and practices that provide stronger guarantees of the fundamental rights of citizens.

References

- Backstrand, Karin. 2006. "Democratizing Global Environmental Governance? Stakeholder Democracy after the World Summit on Sustainable Development." *European Journal of International Relations* 12(4): 467-498.
- Bjola, Corneliu and Ruben Zaiotti. eds. 2021. *Digital Diplomacy and International Organisations: Autonomy, Legitimacy and Contestation*. Abingdon: Routledge.
- Benkler, Yochai and Helen Nissenbaum. 2006. "Commons-based Peer Production and Virtue." *Journal of Political Philosophy* 14(4): 394-419.
- Bijker, Wiebe, Roland Bal, and Ruud Hendriks. 2009. *The Paradox of Scientific Authority: The Role of Scientific Advice in Democracies*. Cambridge, MA: MIT Press.
- Bijker, Wiebe, Thomas P. Hughes, and Trevor Pinch, eds. 2012. *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*. Cambridge, MA: MIT Press.
- Boydstone, J. A., ed. 1989. *John Dewey: The Later Works, 1925-1953, Volume 16, Essays, Typescripts, and Knowing and the Known*. Carbondale: Southern Illinois University Press.
- Broeders, Dennis and Bibi van den Berg. 2020. "Governing Cyberspace: Behavior, Power, and Diplomacy." In *Governing Cyberspace: Behavior, Power, and Diplomacy*, edited by Dennis Broeders and Bibi van den Berg, 1-17. Lanham, MD: Rowman & Littlefield.
- Brousseau, Eric and Meryem Marzouki. 2012). "Internet Governance: Old issues, New Framings, Uncertain Implications." In *Governance, Regulations and Powers on the*

- Internet*, edited by Eric Brousseau, Meryem Marzouki and Cécile Méadel, 368-397.
New York: Cambridge University Press.
- Brousseau, Eric, Meryem Marzouki, and Cécile Méadel. 2012. "Governance, Networks and Digital Technologies: Societal, Political and Organizational Innovations." In *Governance, Regulations and Powers On The Internet*, edited by Eric Brousseau, Meryem Marzouki and Cécile Méadel, 3–36. New York: Cambridge University Press.
- Brown, Ian and Christopher T. Marsden. 2013 *Regulating Code: Good Governance and Better Regulation in the Information Age*. Cambridge, MA: MIT Press.
- Butt, Danny. 2016. "FCJ-198 New International Information Order (NIIO) revisited: Global Algorithmic Governance and Neocolonialism." *Fibreculture Journal* 27: 1-37.
- Callon, Michel. 2003. "The Increasing Involvement Of Concerned Groups In R&D Policies: What Lessons for Public Powers?" In *Science and Innovation: Rethinking the Rationales for Funding and Governance*, edited by Aldo Geuna, Ammon J. Salter and W. Edward Steinmueller, 30-68. Cheltenham: Edward Elgar Publishing.
- Callon, Michel and Vololona Rabeharisoa. 2003. "Research 'In The Wild' and the Shaping of Social Identities." *Technology in Society* 25(2): 193-204.
- Cammaerts, Bart and Robin Mansell. 2020. "Digital Platform Policy and Regulation: Toward a Radical Democratic Turn." *International Journal of Communication* 14: 1–19.
- Cerf, Vincent. 2020. "On Digital Diplomacy". *Communications of the ACM* 63(10): 5.
- Chenou, Jean-Marie. 2010. "Multistakeholderism or Elitism? The Creation of a Transnational Field of Internet Governance." GigaNet: Global Internet Governance Academic Network, Annual Symposium 2010. At Available at <http://dx.doi.org/10.2139/ssrn.2809217>.
- Comor, Edward. 1999. "Governance and the Nation State in a Knowledge-Based Political Economy." In *Approaches to Global Governance Theory*, edited by Martin Hewson and Timothy J. Sinclair, 117-134. New York: State University of New York Press.

- Comor, Edward and Hamilton Bean. 2012. "America's 'Engagement' Delusion: Critiquing a Public Diplomacy Consensus." *International Communication Gazette* 74(3): 203-220.
- Couldry, Nick and Mejias, Ulises. A. 2019. *The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism*. Stanford, CA: Stanford University Press.
- Daly, Angela. 2016. *Private Power, Online Information Flows and EU Law*. London: Hart Publishing.
- David, Paul A., Matthijs den Besten, and Ralph Schroeder. 2010. "Will e-science be open science?" In *World wide research: Reshaping the sciences and humanities*, edited by William H. Dutton and Paul W. Jeffreys, 299-316. Cambridge MA: MIT Press.
- David, Paul A. and W. Edward Steinmueller. 2013. "Scientific Data Commons Underutilisation: Causes, Consequences and Remedial Strategies." Paper Prepared for the International Society for New Industrial Economics (ISNIE) 2013, Panel 4.E in honour of Elinor Ostrom: Governing Networked Knowledge Commons. Available at https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/9066/david_steinmueller.pdf?sequence=1.
- DeNardis, Laura. 2014. *The Global War For Internet Governance*. New Haven, CT: Yale University Press.
- DeNardis, Laura. 2020. *The Internet in Everything: Freedom and Security in a World with No Off Switch*, New Haven, CT: Yale University Press.
- DeNardis, Laura and Andrea M. Hackl. 2015. "Internet Governance by Social Media Platforms." *Telecommunications Policy* 39(9): 761-770.
- DeNardis, Laura and Francesca Musiani. 2016. "Governance by Infrastructure." In *The Turn To Infrastructure in Internet Governance*, edited by Francesca Musiani, Derrick L. Cogburn, Laura DeNardis and Nanette S. Levinson, 3-21. New York: Springer Link.

- Dingwerth, Klaus. 2014. "Global Democracy and the Democratic Minimum: Why a Procedural Account Alone is Insufficient." *European Journal of International Relations* 20(4): 1124-1147.
- Dutton, William. 2017. "Twitter Foreign Policy and the Rise of Digital Diplomacy." Oxford Internet Institute blog. Available at <https://www.oii.ox.ac.uk/blog/twitter-foreign-policy-and-the-rise-of-digital-diplomacy/>.
- EC. 2020. *Proposal for a Regulation of the European Parliament and of the Council on a Single Market for Digital Services (Digital Services Act)*, COM(2020) 825 final, Brussels, 15 December. Available at <https://ec.europa.eu/digital-single-market/en/policies/76009/75007>.
- EC. 2017. *Cybersecurity in the European Digital Single Market*. High Level Group of Scientific Advisors, Scientific Opinion No. 2/2017, European Commission. Brussels. Available at http://ec.europa.eu/research/sam/pdf/sam_cybersecurity_report.pdf.
- Egerton, John 2016. "Judge Rejects AG Attempt to Block IANA transition", *Broadcasting + Cable*, 1 Oct. Available at <https://www.nexttv.com/news/judge-rejects-ag-attempt-block-iana-transition-160061>.
- Einstein, Albert. 1934/2009. "Address at Columbia University, New York, 15 January." In *Albert Einstein: Einstein's Essays in Science*, edited by Alan Harris, 112-113. New York: Dover Publications.
- Epstein, Dmitry, Christian Katzenback, and Francesca Musiani. 2016. "Doing Internet Governance: Practices, Controversies, Infrastructures, and Institutions." *Internet Policy Review* 5(3): 1-14.
- FCC. 2015. *In The Matter of Protecting and Promoting the Open Internet, Report and Order on Remand, Declaratory Ruling, and Order*. Federal Communication Commission, GN Docket No. 14-28. Washington, DC.

- FCC. 2016. FCC Adopts Privacy Rules to Give Broadband Consumers Increased Choice, Transparency and Security of Their Personal Data, Report and Order FCC 16-106. *FCC News*, Federal Communications Commission, Washington, DC., 27 Oct.
- Franklin, Marianne I. 2013a. *Digital Dilemmas: Power, Resistance and the Internet*. Oxford University Press. Oxford.
- Franklin, Marianne I. 2013b. "Is Another Internet Possible? The Global Battle for Control of Cyberspace." ECPR General Conference 2013, September. Available at <https://ecpr.eu/Events/Event/PaperDetails/5168>.
- Fraser, Nancy. 2010. *Scales of Justice: Reimagining Political Space in a Globalizing World*. New York: Columbia University Press.
- G20. 2016. *G20 Digital Economy Development and Cooperation Initiative*. Cancun. Available at <https://www.mofa.go.jp/files/000185874.pdf>.
- GCIG. 2016. *One Internet*. Global Commission on Internet Governance, Centre for International Governance Innovation and The Royal Institute for International Affairs. Centre for International Governance and Chatham House. Available at <https://http://www.ourinternet.org/report> - 4
- GCSC. 2017. *Launch of Global Commission on the Stability of Cyberspace*. Global Commission on the Stability of Cyberspace. Available at <https://cyberstability.org/news/launch-of-global-commission-on-the-stability-of-cyberspace/>.
- GCSC. 2019. *Advancing Cyberstability: Final Report*. Global Commission on the Stability of Cyberspace, November. Available at <https://cyberstability.org/wp-content/uploads/2020/02/GCSC-Advancing-Cyberstability.pdf>
- Gieryn, Thomas F. 1983. "Boundary-Work and the Demarcation of Science From Non-Science: Strains and Interests in Professional Ideologies of Scientists." *American Sociological Review* 48(6): 781-795.

- Gleckman, Harris. 2016. "Multi-Stakeholder Governance: A Corporate Push For a New Form of Global Governance." In *State Of Power 2016: Democracy, Sovereignty and Resistance*, edited by Nick Buxton and Deborah Eade, 90-106. Transnational Institute.
- Drye, Kelly. 2017. "Congress Repeals FCC 2016 Privacy Order via Congressional Review Act." 3 Apr. Available at <https://www.lexology.com/library/detail.aspx?g=53ed4c29-821c-45c8-8c14-fe2601d2ba90>.
- Held, David. 1995. *Democracy and the Global Order*. London: Polity Press.
- Hofmann, Jeanette, Christian Katzenback, and Kirsten Gollatz. 2016. "Between Coordination and Regulation: Finding the Governance in Internet Governance." *New Media & Society* First Published 31 Mar.: 1-18.
- Hofmann, Jeanette. 2020. "The Multistakeholder Concept as Narrative: A Discourse Analytical Approach." In *Researching Internet Governance: Methods, Frameworks, Futures*. Edited by Laura DeNardis, Derrick L. Cogburn, Nanette S. Levinson and Francesca Musiani, 253-268. Cambridge, MA: MIT Press.
- Huang, Q. Elyse. 2020. "Facebook not Statebook: Defining SNS Diplomacy with Four Modes of Online Diplomatic Participation." *International Journal of Communication*, 14: 3885-3902.
- ICANN. 2016. "Stewardship of IANA Functions Transitions to Global Internet Community as Contract with U.S. Government Ends." ICANN Announcements. Available at <https://www.icann.org/news/announcement-2016-10-01-en>
- Jasanoff, Shelia. 1990. *The Fifth branch: Science Advisers as Policymakers*. Cambridge, MA: Harvard University Press.
- Jasanoff, Shelia. 2003. "Technologies of Humility: Citizen Participation in Governing Science." *Minerva* 41(3): 223-244.

- Jasanoff, Shelia. 2021. "Humility in the Anthropocene". *Globalizations* published online 9 February: 1-15.
- Jasanoff, Shelia, Stephen Hilgartner, Benjamin J. Hurlbut, Onur Özgöde, and Margarita Rayzberg. 2021. "Comparative Covid Response: Crisis, Knowledge, Politics. Interim Report, Harvard Kennedy School, 12 January. Available at: https://assets.website-files.com/5fd1ca1c14b4b91eaa7196a/5ffda00d50fca2e6f8782aed_Harvard-Cornell%20Report%202020.pdf
- Kleinwachter, Wolfgang. 2017. "Internet Governance Outlook 2017: Nationalistic Hierarchies Vs. Multistakeholder Networks?" *CircleID*, 6 Jan. Available at https://www.circleid.com/posts/20160106_internet_outlook_2017_nationalistic_hierarchies_multistakeholder/.
- Kleinwachter, Wolfgang and Virgilio Almeida. 2015. "The Internet Governance Ecosystem and the Rainforest." *IEEE Internet Computing*, 19, 64-67. Available at <https://www.computer.org/csdl/magazine/ic/2015/02/mic2015020064/13rRUwjoNB>
- Lindblom, Charles E. 1990. *Inquiry and Change: The Troubled Attempt to Understand & Shape Society*. New Haven, CT: Yale University Press.
- Lord, Kristin M. and Vaughn Teurkian. 2009. "The Science of Diplomacy", *Brookings*, 5 May. Available at <https://www.brookings.edu/articles/the-science-of-diplomacy/>.
- Mansell, Robin. 2013. "Employing Crowdsourced Information Resources: Managing the Information Commons." *International Journal of the Commons* 7(2): 255-277.
- Mansell, Robin and Jean-Christophe Plantin. 2020. *Urban Futures with 5G: British Press Reporting*. London School of Economics and Political Science, June. Available at <http://www.eprints.lse.ac.uk/105801/>.
- Mansell, Robin and W. Edward Steinmueller. 2020. *Advanced Introduction to Platform Economics*. Cheltenham: Edward Elgar Publishing.
- Mansell, Robin and W. Edward Steinmueller. In Press. "Denaturalizing Digital Platforms: Is

- Mass Individualization Here to Stay?" *International Journal of Communication*.
- Mackenzie, Donald and Judy Wajcman. 1999. *The Social Shaping of Technology*.
Buckingham: Open University Press.
- Marchant, Eleanor and Nicole Stremlau. 2020. "A Spectrum of Shutdowns: Reframing Internet Shutdowns from Africa." *International Journal of Communication* 14: 4327-4342.
- Marsden, Christopher. 2017. *Network Neutrality: From Policy to Law to Regulation*.
Manchester: Manchester University Press.
- Mateos Garcia, Juan and W. Edward Steinmueller. 2008. "Open, But How Much?: Growth, Conflict, and Institutional Evolution in Open Source Communities." In *Community, Economic Creativity and Organization*, edited by Ash Amin and Joanne Roberts, 254-281. Oxford: Oxford University Press.
- McKinnon, John D. 2017. "FCC Chief Ajit Pai Develops Plans to Roll Back Net Neutrality Rules", *The Wall Street Journal*, 6 Apr. Available at <https://www.wsj.com/articles/fcc-chief-ajit-pai-develops-plans-to-roll-back-net-neutrality-rules-1491527590>.
- Milan, Stefania and Niels ten Oever. 2017. "Coding and Encoding Rights in Internet Infrastructure." *Internet Policy Review* 6(1): np.
- Moedas, Carlos. 2016. "Science Diplomacy in the European Union." *Science & Diplomacy*, 29 Mar. Available at <https://www.sciencediplomacy.org/perspective/2016/science-diplomacy-in-european-union>.
- Moore, Martin and Damian Tambini. eds. 2018. *Digital Dominance: The Power of Google, Amazon, Facebook and Apple*. Oxford: Oxford University Press.
- Mouffe, Chantal. 2013. *Agonistics: Thinking the World Politically*. London: Verso Books.
- Mueller, Milton L. 2010. *Networks and States: The Global Politics of Internet Governance*.
Cambridge MA: MIT Press.

- Mueller, Milton L. 2020. "Against Sovereignty in Cyberspace." *International Studies Review* 22(4): 779-801.
- Nelson, Richard R. and Bhaven N. Sampat. 2001. "Making Sense of Institutions as a Factor Shaping Economic Performance." *Journal of Economic Behavior & Organization* 44(1): 31-54.
- Nye, Joseph S. 2004. *Soft Power: The Means to Success in World Politics*. New York: PublicAffairs.
- Nye, Joseph S. 1990. "Soft Power." *Foreign Policy*, 80(Autumn): 153-171.
- Nye, Joseph S. 2017. "A Normative Approach to Preventing Cyberwarfare." *AZERNEWS*, 15 Mar. Available at <http://www.azernews.az/analysis/110166.html>
- Parkinson, C. Northcote. 1958. *The Evolution of Political Thought*. Boston: Houghton Mifflin.
- Pohle, Julia. 2016. "Multistakeholder Governance Processes as Production Sites: Enhanced Cooperation 'In the Making'." *Internet Policy Review* 5(3): 1-19.
- Poteete, Amy R., Marco A Janssen, and Elinor Ostrom. 2010. *Working Together: Collective Action, the Commons, and Multiple Methods in Practice*. Princeton NJ: Princeton University Press.
- Powell, Alison B. 2015. "Open Culture and Innovation: Integrating Knowledge Across Boundaries." *Media, Culture and Society* 37(3): 376-393.
- Rogers, Michael and Arlene Luck. 2017. "Digital Citizenship and Surveillance: The Snowden Disclosures, Technical Standards, and the Making of Surveillance Infrastructures." *International Journal of Communication* 11: 802-823.
- Royal Society. 2010. *New Frontiers in Science Diplomacy: Navigating the Changing Balance of Power*. The Royal Society. London.
- Royal Society. 2012. *Science as an Open Enterprise*. The Royal Society. London.
- Rüffin, Nicolas. 2020. "EU Science Diplomacy in a Contested Space of Multi-level

- Governance: Ambitions, Constraints and Options for Action.” *Research Policy* 49(1): 1-10.
- Sarikakis, Katherine. 2012. “Securitization and Legitimacy in Global Media Governance.” In *The Handbook of Global Media Research*, edited by Ingrid Volkmer, 143–155. Oxford: Wiley-Blackwell.
- Schemeil, Yves. 2013. “Bringing International Organization In: Global Institutions as Adaptive Hybrids.” *Organization Studies* 34(2): 219-252.
- Scholte, Jan A. 2002. “Civil Society and Democracy in Global Governance.” *Global Governance* 8(3): 281-304.
- Scholte, Jan A. 2014. “Reinventing global democracy.” *European Journal of International Relations* 20(1): 3-28.
- Shahbaz, Adrian and Allie Funk. 2020. *Freedom on the Net 2020: The Pandemic’s Digital Shadow*, Freedom House, Washington, DC. Available at https://freedomhouse.org/sites/default/files/2020-10/10122020_FOTN2020_Complete_Report_FINAL.pdf
- Slaughter, Anne-Marie. 2004. *A New World Order*. Princeton, NJ: Princeton University Press.
- Stodden, Victoria. 2010. “Open Science: Policy Implications for the Evolving Phenomenon of User-Led Scientific Innovation.” *Journal of Science Communication* 9(1): 1-8.
- Strange, Susan. 1998. *States and markets, second edition*. London: Continuum.
- Sutherland, William J., Laura Bellingan, Jim R. Bellingham, Jason J Blackstock, Robert M Bloomfield, Michael Bravo, Victoria M. Cadman, David D. Cleavelly, Andy Clements, Anthony S. Cohen, David R. Cope, Arthur A. Daemmrich, Cristina Devichhi, Ron L. Simmem. 2012. “A Collaboratively-Derived Science-Policy Research Agenda.” *PLoS ONE* 7(3): 1-5.
- Tang, 2020. “Huawei Versus the United States? The Geopolitics of Extraterritorial Internet Infrastructure.” *International Journal of Communication* 14: 4556-4577.

- Taplin, Jonathan. 2017. *Move Fast and Break Things: How Facebook, Google, and Amazon Cornered Culture and Undermined Democracy*. New York: Little, Brown and Company.
- UNESCO. 2021. *Communication and Information Programme*. Paris: UNESCO. Available at <https://unesdoc.unesco.org/ark:/48223/pf0000375369>.
- United Nations. 2020. *United Nations Strategy and Plan of Action on Hate Speech: Detailed guidance on Implementation for United Nations Field Presences*, New York, September. Available at https://www.un.org/en/genocideprevention/documents/UN%20Strategy%20and%20Plan%20on%20Hate%20Speech_Guidance%20on%20Addressing%20in%20field.pdf.
- United Nations. 2020. *The Age of Digital Interdependence: Report of the UN Secretary-General's High-level Panel on Digital Cooperation*, United Nations, New York, June. Available at <https://www.un.org/en/pdfs/HLP%20on%20Digital%20Cooperation%20Report%20Executive%20Summary%20-%20ENG.pdf>.
- van Dijck, José, Poell, Thomas and de Waal, Martijn. 2018. *The Platform Society: Public Values in a Connective World*. Oxford: Oxford University Press.
- van Eeten, Michel. J. G. and Milton. L. Mueller. 2013. "Where is the Governance in Internet Governance?" *New Media & Society* 15(5): 720-736.
- Van Langenhove, Luk. 2016. "Global Science Diplomacy For Multilateralism 2.0." *Science & Diplomacy* 5(3): np.
- Vixie, Paul. 2010. "Taking Back the DNS", *CircleID*, 20 Jul. http://www.circleid.com/posts/20100728_taking_back_the_dns/
- Vixie, Paul and Vernon Schryver. 2017. "DNS Response Policy Zones (RPZ), Draft 00". IETF, Domain Name System Operations. Available at <https://tools.ietf.org/html/draft-ietf-dnsop-dns-rpz-00>

Williams, Raymond. 1983. *Towards 2000*. London: The Hogarth Press.

Zuboff, Shoshana. 2019. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. New York: Public Affairs.

Zysman, John and Steven Weber. 2001. "Governance and Politics of the Internet Economy:

Historical Transformation of Ordinary Politics with a New Vocabulary?" BRIE

Working Paper 141, BRIE, University of California, Berkeley. Available at

<http://www.brie.berkeley.edu/publications/wp141.pdf>