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The Internet and Public Policy

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The Internet and Public Policy

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Abstract

This article looks at the role of the Internet in policymaking, identifying potential policy effects of widespread use of the Internet by citizens, firms, governments and voluntary organizations. It considers how the Internet and Internet-enabled social change might impact upon each of the four 'tools' of government policy – nodality, authority, treasure and organization – and how it might impact upon the mix of tools that policymakers select. It suggests a number of values normally associated with the Internet – innovation, trust, openness and equity – that might be expected to emerge in policy trends. It discusses the implications of Internet-driven change for public policy research, pinpointing some key methodologies that will become increasingly important; generation of large-scale transactional data; network analysis and experimental methods. The article argues that we cannot understand, analyse or make public policy without understanding the technological, social and economic shifts associated with the Internet – a task that the journal *Policy & Internet* is poised to undertake.

Keywords: internet, government policy, methodology

Author Notes: Helen Z. Margetts, Professor, Oxford Internet Institute, University of Oxford, and Editor-in-Chief of *Policy & Internet*. To take advantage of a once-in-an-editorship opportunity to articulate the mission and scope of the journal, this article has not been peer-reviewed, in contrast to all other academic articles in this and subsequent issues.

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Policymaking in the twenty-first century takes place in a changed environment. A significant proportion of social, economic and political activity across the world takes place on the internet. The Internet is intertwined with financial markets, with government and public services, with social life and social problems, and with the criminal world. Increasingly the major challenges that face public policy – from climate change to crime to public health – are tackled with technological innovations that involve the internet. The Internet is embedded in interactions between citizens, firms, governments and NGOs, bringing with it new practices, norms and structures. These developments require – and facilitate – a policy response.

The journal *Policy & Internet* will publish research that examines the role of the Internet in public policymaking. It calls for research that looks across sectors and the toolkit of policymaking to identify generalized policy effects at the macro-level. Equally, the journal calls for research that delves into more micro-level implications of the internet, for example: education, health, social welfare, immigration, foreign policy, defence, taxation, transport, industry, commerce, services, entertainment, employment, security, criminal justice, agriculture, development, telecommunications and the media. These issues can be tackled from any disciplinary perspective, from the physical and biological sciences, social sciences, humanities or law. They can be observed in any region of the world. Any research that uses new data, methodological innovation or theoretical development to investigate the relationship between the Internet and policy will be welcomed. The scope is wide, but the journal will be focused on this key relationship, with the aim of building up our understanding of this uncharted territory.

This article sets out the agenda, pointing across the cornucopia of issues that research published in this journal might tackle. First, it considers societal trends that relate to the Internet and their implications for policymaking. Second, it looks at how these trends might affect each of the four ‘tools’ of government policy: nodality, authority, treasure and organizational capacity, in terms of sustaining the operations of government and driving innovation. Third, it asks what ‘values’ we might expect the Internet to bring to policy-making. Fourth, it considers the implications of the Internet for public policy research and highlights the need for multi-disciplinarity, methodological innovation, theoretical development and new forms of data generation and collection.
Internet-Fuelled Social, Economic and Political Change – Requiring a Policy Response

For many people across the world, large chunks of their social, economic and political life have moved online. By 2009 there were an estimated 1.7 billion users of the Internet worldwide, a quarter of the world’s population. Internet penetration has reached nearly 100 per cent in some Scandinavian countries, three quarters of the population in North America, half of the European population and nearly one fifth in Asia, where it continues to grow at a dramatic rate. Asian users already represent over 40 per cent of the total number of Internet users worldwide and over 380 million of them are using the Internet in Chinese (www.internetworldstats.com). For those who have access, the Internet is the first port of call for information on almost any subject, radically lowering the transaction costs of information seeking and exchange. People are shopping, banking, playing, dating, educating and entertaining themselves online on a massive scale. The Internet (like all computer networks) has proved particularly popular for sexual activity; YouPorn is now claimed to be the size of the whole worldwide web in 2000 (Wilks, 2010).

As well as doing things that they used to do offline, people are doing new things, particularly with the growth of so-called Web 2.0 applications, where users can easily produce as well as consume content themselves. Examples include social networking sites, used by around a third of Internet users; photo and video-sharing sites such as Flickr and YouTube; blogs and social media such as Twitter; and peer-produced information goods such as the online user-generated encyclopaedia Wikipedia, the English language version of which has over 3 million articles and 11 million registered users. The huge growth in social networking and social media sites means that a significant proportion of Internet users now produces as well as consumes content on the Internet. In the UK, by 2009 over half of Internet users had undertaken some kind of productive activity, such as creating a profile or personal website or posting messages or comments on discussion fora online (Dutton et al., 2009).

Perhaps more than any other area, the economic world has moved online. From the first online bank in 1994 and the launch of Amazon.com in 1995, U.S. e-commerce and online retail sales reached over $200 billion in 2008. Internet-based networks such as intranets and extranets span the whole value chain of all but the smallest of businesses in the developed world. By 2009, over 80 per cent of Internet users in the UK had bought or searched for product information on-line. The Internet and related technologies have brought major changes to global financial markets, particularly in terms of
reduced transaction costs, cross-border money flows and spiralling complexity. New ‘peer-to-peer’ markets have developed, where consumers sell to each other, including Internet auction ‘houses’ such as e-Bay where people buy from anonymous sellers and more personalised markets within social networking sites where people buy from people in their friendship networks.

Political and interest group mobilization has also shifted onto the internet. There has been a rise in global political activism, with internet-based mass demonstrations against corporate globalization. New globally-oriented interest groups have formed almost entirely online, such as the civic campaigning organization Avaaz, with its mission to ‘ensure that the views and values of the world’s people inform global decision making’ and a claim of more than three million members from every country in the world (www.avaaz.org), and the on-line NGO Kiva, the ‘world’s first person-to-person micro-lending website’, which matches potential entrepreneurs in developing countries with potential donors and claims that 270,000 lenders (who hand over money in $25 increments) have funded 40,000 borrowers in 40 countries and provided $27 million in funding (Forbes, 3rd June 2008). In 2003, millions of people were mobilized rapidly across the world to demonstrate against their state’s involvement in the Iraq war. In 2006, millions of U.S. citizens protested against changes to U.S. immigration policy, including 500,000 in Los Angeles alone. Mass demonstrations took place in Iran in protest at allegedly rigged election results in 2009, both organised and broadcast across the world through Internet-based communications. Even more traditional groups operate through on-line networks and undertake a whole range of on-line activities, while running down their ‘offline’ activities. It is a topic of debate whether political parties may not be transforming themselves into mass membership organizations on-line (see Gibson and Ward, 2009; Margetts, 2006a), but in any case, the Internet has had a dramatic effect on how they interact with supporters, donors and potential voters.

Basically, then, the people, firms, interest groups and political organizations with whom governments interact and make policy ‘about’ are using the Internet in their lives and business in a huge variety of ways, with potentially profound policy effects. A taxation agency must take account of the virtualization and flows of capital across national boundaries. An employment agency must realise that job search has moved on-line and must enter a highly competitive market if it wishes to provide job seeking services. Education agencies must incorporate the Internet into teaching curricula and consider the possibilities of e-learning, health professionals must understand the proliferation of online health information, police
agencies must contend with cybercrime, foreign offices deal with globally linked diaspora and protest movements. The list is endless.

Although these developments are much discussed as social and economic phenomena, the policy responses that they necessitate are less often analysed. The governance of the Internet is a hugely debated issue, perhaps ironically given the techno-utopian dream of the earliest users, who saw it as the ultimate ungovernable space (Barlow, 1996; Hofmann, 2010). The more diffuse yet pervasive implications for public policy of social, economic and political changes across sectors of society, the economy and government, has been less coherently explored. Policymaking communities within sectors and academic scholars within disciplines may consider the implications of the Internet for policy in specific areas, but as a topic it tends to be ghettoised within sub-specialisms. Likewise, when researchers who specialise in the Internet come together, the analysis of policy effects tends not to be the primary issue of concern. The journal Policy & Internet is aimed at bridging this gap across sectors and disciplines.

The Internet and the Tools of Public Policy: Shifting the Mix?

To consider what the implications of the Internet for policymaking might be, we need an analytical device to provide some structure to the diffuse range of possible policy effects. One such device is the ‘tools of government’ approach conceived by Hood (1983) and developed by Hood and Margetts (2007) for the digital era. When making policy, governments are trying to influence social behaviour and shape the world outside; these authors argue that to undertake this task, governments have four basic types of tool in their toolkit. First, nodality denotes the property of being ‘nodal’ to information and social networks and having the capacity to disseminate and collect information. Second, authority denotes the possession of legal or official power to demand, forbid, guarantee or adjudicate. Third, treasure denotes the possession of money or that which can be freely exchanged. Fourth, organizational capacity denotes the possession of a stock of people and skills, land, buildings, materials, computers and equipment, somehow arranged.

Any public policy will involve some mixture of these four basic resources. So for example, a governmental campaign to reduce levels of smoking in a population could involve a public information and advertising campaign (nodality), regulation of advertising and the banning of smoking in public places (authority), incentivization to give up smoking through the provision of free nicotine alternatives (treasure), and the provision of professional help to give up, such as a help-line or trained counselling
(organizational capacity). A government planning such a campaign would be looking at some menu of these basic possibilities. Furthermore, each tool may be calibrated according to the extent to which it deals with government in a ‘particular’ or ‘general’ way. Particular applications are those directed at specific, named individuals, whereas the most general tool will be aimed at the world at large. In the anti-smoking policy example, a general use of the nodality tool might be a TV advertisement or advertising billboard, while a particular use would involve writing individually to known smokers. Disturbing pictures of smokers’ damaged organs on cigarette packets falls somewhere in between, targeted at smokers as the group most likely to see them.

Defining public policy so, what important trends in policy-making might result from the shift of so much of societal life onto the Internet? These are the trends that we would want to see analysed in a journal called Policy & Internet.

**Nodality: Rising Competition in a Heterogenous Information Environment**

First, with respect to nodality, the Internet has brought change to the whole information environment within which governments (and indeed all organizations) operate. In a fundamental shift in information seeking behaviour, the Internet is becoming the first port of call for any information seeking task; over half of UK citizens now say they would go to the Internet first to find out the ‘name of their MP if they didn’t know it’, for example, and the figures for travel or product information are much higher (Dutton et al., 2009). As citizens go to the Internet first to find things out, what they find will depend on their search strategy and the algorithm of search engines as well as the capacity of organizations to make sure they appear in the top ten search engine results (beyond which most citizens do not stray, Petricek et al., 2005). So the nodality of government will depend upon government’s ability to compete successfully in the online space, something that many governments find challenging. Nodality will also be crucially affected by the decisions of the most popular search engines (Google in the UK), which become important new actors on the policy-making stage. And a whole range of social media will have further implications; as information flows through viral networks on applications such as Facebook and Twitter, the nodality of any organization depends not just on its own web space but on its ability to operate within these networks. Traditional media outlets such as television channels and newspapers struggle to reinvent themselves in this environment, with many (particularly local newspapers) failing during the
late 2000s. With the proliferation of information channels online, it can become more difficult for government to disseminate information; the potential audience is increasingly fragmented.

*An ‘Arms Race’ for Authority*

For authority, the Internet does not change the basic resource – something that government possesses by virtue of being government. But it does vastly influence government’s ability to wield that authority, both in terms of how citizens use the Internet to challenge or circumvent authority, and how governments use the Internet and related technologies to respond. The network architecture chosen for the early Internet allowed a freedom of content exchange that led early Internet users to believe it to be an anarchic, ungovernable space (Hofmann, 2010). Indeed one of the pioneers famously proclaimed in his ‘Declaration of the Independence of Cyberspace’ to ‘Governments of the Industrial World’: ‘I declare the global social space we are building to be naturally independent of the tyrannies you seek to impose on us’ (John Perry Barlow, 1996). From this time, the Internet itself has been a highly contested policy object itself, with intense debate over the susceptibility of the Internet to regulation, particularly with the growth in e-commerce (Lessig, 2006). And those arrangements that have developed for governing the Internet have implications for how we understand governance per se, as J.P. Singh discusses in his article in this issue.

The intertwining of the Internet with authority could lead to a reshaping of state-citizen relationships across regimes of all kinds. In authoritarian states, opposition movements shift online and develop new forms of political mobilization, as in the Iranian demonstrations of 2009; many regimes respond by operating sophisticated Internet filtering regimes (Deibert et al., 2008) and targeting cyber-activists. In more democratic regimes, criminal justice agencies use the Internet to mine personal information held by government and to target authority at suspect groups or key areas (crime ‘hotspots’) in what some have come to label the ‘surveillance state’ (Lyon, 2003), raising issues of ‘privacy’ and ‘identity’ which have become key areas of concern for many Internet researchers. Internet technologies also present possibilities of ‘techno-regulation’, both in terms of policing the Internet itself (through automatic censoring of child abuse images, for example) and new ways of directing authority within the state, for example, for regulating health professionals, and in the use of internet-based systems as a means to limit state corruption in developing countries. Nearly all states face spiralling cybercrime of an increasingly professionalised kind (Hofmann, 2010) and some have even experienced
‘cyber war’, requiring government agencies to participate in an ‘arms race’ of technological sophistication in their handling of authority.

**Targeting Treasure: Conditionality in Public Policy**

Third, treasure was perhaps the earliest resource to move online; firms and governments moved their financial systems on-line from the 1950s onwards and e-commerce boomed, busted and boomed again in the early days of widespread Internet use. Changes in the way that governments and firms process treasure range from macro to micro; it is uncontroversial to argue that the Internet has brought a ‘virtualization of capital’ (Castells, 2009) and a spiralling complexity of financial products that played such an important role in the worldwide banking crisis of 2008-9 and that pose major challenges to financial regulation and taxation policy. The Internet and related technologies greatly enhance government’s ability to identify certain categories of citizens eligible for specific benefits and tax credits, bringing a general shift towards ‘conditionality’ in public policy (Henman, 2010). The Internet allows more fine-tuning of treasure in other areas, for example in labour markets, where it becomes possible for certain services (including governmental operations) to be located remotely in any part of the world. Forms of spot contracting of labour have also emerged, such as Amazon’s micro-labour market Mechanical Turk, where users can work at home on their computers performing a range of tasks for micro-payments.

**Organizational Capacity: Shifting Boundaries between Governments and Citizens**

Widespread use of the Internet means that to some extent, the balance of government’s organizational capacity relative to that of society has shifted, with the emergence of new ‘para-organizational’ forms, such as the rise of trans-national diaspora as coherent players in foreign policymaking (Westcott, 2008). As noted in the introduction, social movements have leapt online, seemingly remodelling the ‘logic’ of collective action as the costs of mass mobilization reduce and real-time ‘social information’ can increase incentives to participate (Lupia and Sin, 2005; Margetts, John et al, 2009). Social media facilitate ‘storms’ of citizen-initiated policy activity that put pressure on policy-makers to change policies. The growing phenomenon of ‘peer production’ (Benkler, 2006) has led to the success of Wikipedia and a whole host of other freely available user-generated information goods. Government has lagged in making use of these models of production, weakening their capacity vis-a-vis society.
The Internet challenges one category of organizational capacity in particular: organizational expertise. That is, it facilitates deprofessionalization and a remodeling of ‘principal–agent’ relationships across public and private sectors. Changes in the scale and quality of information available to Internet users can in some contexts drastically shift information asymmetries between professionals and citizens, often in citizens’ favour. Healthcare professionals regularly encounter patients that have used search to uncover large amounts of deeply specialised information, while university lecturers must face the fact that even while they speak, their students often have literally at their fingertips a huge range of knowledge and expertise which could challenge their pronouncements. Professionals (and indeed parents) dealing with children need to overcome their ignorance of the social networking sites where children spend so much time, as Barbie Clark argues in her article in this issue. Professionals within policy sectors must confront another implication of the online nature of much social activity; social problems that reinvent themselves online. Teachers must consider the possibility of cyber-bullying in ways that extend far beyond the playground, for example, while healthcare professionals now deal with Internet addiction as well as evidence that addiction to online gambling is more severe and more prevalent than the offline variety.

As these trends develop, it has been argued that the Internet and related technologies could really transform government’s organizational capacity, presenting a new paradigm for how government is organized, in what some have labelled Digital-Era Governance (DEG) (Dunleavy, Margetts et al, 2006) where digital technologies play a central role in public management reform. Under this view, government’s organizational capacity is crucially affected by its capacity to use the Internet and related technologies internally and to interact with citizens, firms, voluntary organizations and other governments, in what is now widely known as ‘e-government’, surely a topic for extensive analysis in this journal. Under the DEG view, internet-based technologies (particularly ‘Web 2.0’ applications) could allow a ‘co-production’ or even ‘co-creation’ of public services, where citizens enter the front office of government in a ‘democratization of innovation’ (von Hippel, 2005).

Each of the four ‘tools’ of government policy then is affected in distinct ways by widespread use of the internet, which offers new solutions and new challenges to policy-makers. For nodality, we might expect to see growing competition for governments seeking to use nodality in public policy initiatives and an increasingly fragmented information environment, in which disseminating generalized messages to the world at large may become more difficult. For authority, we see challenges to governmental
authority which can require (or are perceived to require) policy responses that ratchet up technological capability, which can become an ‘arms race’ between governments and citizens. For treasure, the Internet makes new forms of group-targeted incentivization possible, making it potentially a more agile and flexible policy tool. Finally, for organizational capacity we see a blurring of boundaries between public and private sectors and shifts in information asymmetries between professionals and citizens.

A ‘tools’ approach can thereby lead to a more nuanced vision of the relationship between the Internet and policy, rather than a general cry of ‘all change’ or ‘no change’ as was often the conclusion of early studies. Differential changes to government’s capacity to use the tools are important, because they can shift the ‘mix’ of policy tools that policymakers are likely to select. So the challenge to government’s use of nodality, for example, might lead to more authoritarian or costly government through increased use of the other tools, which are more likely to be costly, in terms of effort, expense and staffing requirements and the bringing of ‘trouble, vexation and oppression’ to citizens (Smith, 1910; Hood and Margetts, 2007: 155).

**Generalized Policy Effects: The Internet and Changing Values in Public Policy**

As well as bringing changes to each of the ‘tools’ of government, the Internet might bring more generalized change to policymaking and to the norms, values and ethics of public policy. For all four tools discussed above, Hood and Margetts (2007) noted a development towards digitally enabled ‘group targeting’ with a move away from the ‘general’ or ‘particular’ ends of the spectrum noted above. Basically, technological developments tend to make easier policies geared at some particular group or category of people, while making highly particular and widely generalized applications proportionately more difficult and expensive, in what communications scholars would call narrowcasting. Government can target authority specifically at certain groups, for example, by ‘fast-tracking’ travellers entering the country, or conversely by restricting the movement of other categories, through electronic tagging of prisoners for example. Treasure, as noted above, can be targeted conditionally towards groups according to their particular circumstances. Even organizational capacity may be operated in a group-targeted way, for example as in those road barriers that retract into the ground when authorized vehicles (such as taxis and ambulances) drive up close. Group targeting can make public policy more targeted and more efficient – it can also have less desirable effects, such as rising inequities...
between those who end up being fast-tracked and those who are slow-tracked.

The Internet could also bring new ‘values’ to public policy. There are key values that have been associated with the internet. Indeed, the history of the development of the Internet is studded with designers and pioneer users who held strong beliefs about how the technological network could bring new forms of social organization which challenged long-held values of modern society. The Internet has been much heralded for its capacity to facilitate innovation (in what Zittrain, 2006, 2008 has termed generativity); its freedom and openness; its capacity to engender trust in social and economic interactions; and the extent to which it lowers social boundaries and facilitates equity. If public policymaking and implementation is intertwined with the Internet and related technologies, could we expect some of these values to penetrate public policy trends as well?

The internet as a platform for policy innovation: If this were the case, one such value would certainly be innovation. As Zittrain (2006) put it, the lack of any central controlling power means that the Internet should be conceptualized as a ‘generative grid’ including both PCs and networks, open to the creation and distribution of innovations. For the first time, digital technologies are being widely used by individuals and groups to innovate through interconnection with each other, in contrast to earlier information technologies which were largely internal to large firms and governments. As noted above, this proliferation of societal driven innovation requires a policy response across the policy tools. Quite simply, government has to innovate to preserve its nodality in the face of competition, to wield authority, to tax, to spend and to organize in the age of the internet.

Openness in policymaking: Another value that the Internet might bring to public policy is openness, characterised by the freedom from control by any central agent in the design of the internet; open access to information; and new possibilities for citizens to participate in policymaking. Openness is a value which contrasts strongly with the traditional perspective of governments and firms. The Internet has the potential to bring increased transparency (Hood and Heald, 2006), for example through open software which has even been hypothesised to lead to more effective democratic government (Camp, 2006), through reduced complexity of ‘joined-up’ government, greater accessibility of public information, moves towards freedom of information and ‘open-book’ government and more ‘rule-like’ government processes (Margetts, 2006b).
Trust in government?: Another potential value that the Internet could bring to public policy processes is trust, perhaps surprisingly given the traditional assumption that trust is something that evolves through face-to-face interaction. There is evidence to suggest that the Internet and the Web are ‘experience technologies’; the more that people experience them the more they trust the applications and information that they provide (Dutton and Shepherd, 2006). Firms already tackle on a daily basis the issue of how they can generate trust in their online presence and how this trust can be sustained in the face of spiralling levels of increasingly professionalized cybercrime. The rise of ‘social e-commerce’ through peer-to-peer markets (such as e-Bay) and commercial transactions taking place via online social networks illustrates new forms of trust in on-line markets, for example through reputation systems and friend-to-friend transactions. The rise of automatic agents in e-commerce has caused economists to investigate the effect of delegation and anonymity on individual decision making (Vulkan, 2003). As electronic public services become ubiquitous, governments increasingly face this question too. Will citizens trust government more online – because they feel that decisions have been made in an automated rules-based and impartial way – or less, because they perceive a ruthless automated dehumanised officialdom? And how can issues of privacy and online identity be resolved in ways that maintain trust in citizen-government and business-citizen relationships?

Equity – and inequity: Finally, equity was at the heart of the new forms of social organization heralded by the early techno-utopians who saw cyberspace as a place where traditional prejudices, social boundaries and inequities could be broken down. The anonymity that the Internet provides (encapsulated by the famous New Yorker cartoon of a dog sitting at a computer terminal with the caption ‘On the Internet, no-one knows you are a dog’, 5th July 1993) can be one way that prejudices are reduced (although in the dog’s case, they would re-emerge). In policy terms, however, it is clear that the Internet has also brought the potential for new inequities, particularly for those who lack Internet skills or access. Digital exclusion has been shown to be associated with social and economic exclusion (Helsper, 2008, 2009) and such inequities between the digitally included and excluded could be exacerbated as electronic interaction becomes the norm, with the potential for ‘residualization’ of services for excluded groups, as offline channels are run down or even withdrawn altogether. Online equity is enhanced by the development of the non-English internet, as huge new language populations move online, although other inequities could be on the way as the Web becomes increasingly segmented according to language.
There is of course nothing inevitable about the appearance of these values in public policy trends, but we can expect to see them raised by those analysing the relationship between the Internet and policy. And if they do become prevalent in policymaking environments, then we might also expect particular counter-values in policymaking to arise. For example, as governments – traditionally viewed as poor innovators particularly where technology is involved – are forced into positions where they have to innovate, we might expect higher levels of risk in policymaking, and the attempt to counter risk by bringing robustness and resilience, at the heart of traditional perspectives on public administration, back in as counter values (Hood, 1991). Likewise, if the values of openness and trust mean that public sector information becomes widely available and people more trusting of internet-based applications, we might see security emerging as a key value of public policy and administration. Alternatively, as personal information becomes so freely available online, meaning that nothing is forgotten but remains available indefinitely, Mayer-Schönberger (2009) has argued that we need to bring specific policies geared at ‘the virtue of forgetting’, such as mandatory expiry dates on documents that contain such information. And as openly produced and freely consumed goods have become widely available, such as encyclopaedias and news sources, we have seen the traditional producers of private goods, such as mainstream media, devise ways of returning such goods to the market; for example, various prominent media figures claim that most newspapers will soon be charging for content online (as the Financial Times already does). Finally, as noted above, the possibilities for equity facilitated by the Internet provoke new questions of inequity for those who do not have Internet access or skills, discussed under the banners of ‘digital divides’ and ‘digital exclusion’.

The Internet and Public Policy Research: Methodological Innovation and the Generation of New Data

This shift online of social, political and economic life and the increasingly important relationship between the Internet and government’s policy toolkit has major implications for public policy research. The Internet itself is a rich source of empirical data about social and political behaviour, offering the possibility of obtaining ‘real’ transactional data about behaviour rather than responses to opinion surveys (Savage and Burrows, 2007). When have we seen the complete transaction history of an organization, as provided by the freely available edit history of Wikipedia (Loubser, 2009)? Daily capture of some of the innumerable online campaigns now in operation can provide thousands of ‘joining curves’ of real political mobilizations which before we
could only have plotted theoretically. Social networking sites such as Facebook generate massive amounts of information on social networks. Automatic ‘web-crawlers’ can be set to work collecting non-obtrusive data on links between and within sites to provide a structural view of any sector. By generating new data, the Internet provides the opportunity to understand areas of life and test theories of policymaking that we have lacked the data and research tools to test hitherto.

This change is exciting, but also brings new challenges to public policy research. At times researchers in this area have ‘too much’ data. The download of Wikipedia noted above resulted in a six terabyte database, beyond the scope of a desktop computing environment and requiring use of the Grid Service to analyse. Web-crawling provides huge maps of organizational relationships and internal structures which can be difficult to interpret. Thousands of curves showing take-up rates of online petitions or charitable campaigns are interesting (and look pretty), but without knowledge of activity behind the scenes it can be difficult to test competing hypothesis; an ‘S-shaped’ curve might indicate a viral network of communication, or a normal distribution of propensity to join among participants. Precisely because this is ‘real’ data – not survey data with demographics attached – analysing it is a difficult task and developing tools to undertake such analysis will be central to the development of our understanding of online behaviour.

Sometimes, we have surprisingly little data. User data on the Internet is the property of the owner of a site or third parties and even if we can obtain it, we still know little about where users came from or where they are going. Search engine companies are the custodians of a wealth of such data, but marketing and privacy concerns mean that they tend not to publish it, let alone share it. There are ethical and legal barriers to data collection. Note, for example, the controversy when the U.S. Department of Justice asked Google for a million anonymized records of users of pornographic sites in 2005 (Google refused) or when AOL released the logs of all searches done by 500,000 of their users over three months in 2006. The data was ‘anonymized’, but did allow at least one individual to be identified and was described by many commentators as a blatant violation of users' privacy. Facilities such as Google Trends allow the observation of general patterns in Internet use and indicate the prevalence of search terms, but it can be hard to identify micro-trends. Around 1.5 billion politically-oriented YouTube video clips were viewed during the 2008 U.S. presidential election; analysing the pattern of downloads and the role of such videos in the campaign would be fascinating. But YouTube does not allow the use of automatic crawlers to
track download data and Facebook operates strict rules which prevent analysis of the millions of social networks it generates.

Understanding policy-related organizations, particularly government, on the Internet raises another methodological point. By now, governments to some extent ‘are’ their electronic presence – the only bit of government that many people see. Yet there is a long tradition of looking at government in a technology-free way: ‘why does the contemporary public management and public administration literature look like movies or TV programmes showing office life before the late 1980s? Because there is no IT visible’ (Dunleavy, Margetts et al., 2006). Now that the Internet and associated IT systems have moved to centre stage in government policy-making and operations, any analysis of governmental organizations needs to consider their information systems, their electronic presence and the type of data that these systems generate. Likewise, other policy actors can only be studied by looking at their electronic presence, particularly in the field of global civic activism where groups like Avaaz and Kiva (noted above) exist only online, shifting their resources in virtual environments.

The Internet also brings a range of methodologies to the forefront of public policy research, as well as the need to develop traditional methods of qualitative and quantitative research. The structure of the Internet itself as a ‘network of networks’ and the proliferation of social networking sites, the viral spread of information, online discussion fora and social media sites means that network analysis has become an increasingly important methodology for understanding the social world. The whole nature of communication about the economic and political world has shifted, with platforms such as YouTube and Twitter attaining millions of users not through any broadcast model of communication, but by spreading through viral networks and receiving broadcast attention only when they have already attained huge usage levels. Online social networks with distinctive structures are crucial intermediary variables in behavioural analysis. Scholars from across a range of disciplines including mathematics, physics, computer science and the biological sciences (see for example Barabasi, 2002; Kleinberg and Lawrence, 2001; Watts and Strogatz, 1998) were early to explore and characterize the network structure of the Web as a whole, but understanding the nature of social networks online, the relationship between social and mathematical structures and the implications for policy networks within sectors requires technologically sophisticated social science expertise in network analysis as well.

Another way of understanding policy effects of the Internet is through social science experiments. Experimental methodologies have long been part of social psychology and have become popular in economics and
still more recently in political science and sociology (see Margetts and Stoker, 2010 for a discussion, and Margetts, John et al., 2009 for an example) and could provide new insight into what shapes online behaviour. Some experiments involving games that require a strictly controlled environment for interactions need a laboratory, as developed at the Oxford Internet Institute and Said Business School (OxLab), while others use field experiments to test the effects of on-line interactions and deliberation (see Smith, John et al., 2009). But the Web itself has the potential to become a ‘field’ and to facilitate new experiments of the kind developed by Duncan Watts (Salpnik et al., 2006), which used custom built web sites to investigate the effect of social information about the preferences of others on cultural markets, involving over 14,000 subjects. Research into the policy effects of the Internet should include the development of this type of experimental method to investigate a range of commercial, social and political contexts.

Finally, researching policy in this changed environment is an inherently multi-disciplinary activity. Policy & Internet is a multi-disciplinary journal because it requires the perspective of tools of more than one discipline to understand almost every area of policy. Academic researchers as well as policymakers require new skills to negotiate this changed world; rigorous study of life online is a technologically complex task. Social science research increasingly borrows from other disciplines as diverse as physics, computer science, neuroscience and epidemiology, and involves the development of methodologies such as advanced network analysis, agent-based modelling and experiments. The ‘Web Science’ endeavour led by Tim Berners Lee (the inventor of the Web) and associated researchers is one such move in this direction (Berners Lee et al., 2006). The rich variety of data and insight that these disciplinary mixes can provide will be a valuable resource to both scientific endeavour and policymaking in the future.

Conclusion: A Call for New Data, New Methods and Theoretical Development

So, the Internet has implications for policymaking both within and across the tools of government and individual policy sectors; that is, specific and generalized effects. It may lead to changes in the ‘mix’ of tools that policymakers select and a value shift in public policy. It implies a new style of public policy research, with an emphasis on the generation of large-scale transactional data from the Web, network analysis, social science experiments and electronic modes of interaction. This short analysis has used a ‘tools’ framework to turn up a scattering of key issues raised by
internet-driven social change and policy responses, all of which we might expect to see covered in this journal. It has pinpointed a number of particular values and methods that we might see at the forefront of policymaking and research. Many readers may disagree with the selection and emphasise others. I hope that they will use the journal as a forum to continue the discussion and put forward alternative perspectives.

The most important guideline for submission to *Policy & Internet* is that papers present ‘genuinely new approaches to a policy question or problem relating to the Internet and related technologies. Such approaches may include methodological innovation, theoretical development or new data. To conclude, I explain why we consider these criteria to be so important.

With respect to empirical data, as noted above, the Internet has the capacity to provide both too much (which poses challenges to analysis) and too little data (which requires innovation to fill the gaps). Many of the most seminal studies of the changed policy environment (see for example Bimber, 2003; 2005; Lupia and Sin, 2003; Benkler, 2006) are insightful and analytical, but largely qualitative. There are many long-mooted hypotheses accepted in the field of Internet studies that have never, actually, been tested. Articles investigating policymaking in this environment need to take advantage of the internet’s capacity to generate transactional data about the online world, as well as more familiar forms of qualitative and quantitative data.

As outlined above, the Internet both facilitates and requires methodological innovation in public policy research. It is not now possible to study a government department, a political party, an interest group, a media outlet or any other policy actor without considering their online strategy and presence. It is not possible to consider how a policy change might bring or has brought about societal change, without being able to analyse online activity. Luckily, the research tools required to study these phenomenon are also facilitated by the Internet itself – web crawling, user metrics, data mining, advanced network analysis and even field experiments. These methods are increasingly incorporating some of the solutions of other disciplines to complement traditional social science methods, such as opinion surveys and ethnographic research.

In spite of all the scholarly attention which the Internet has received, theoretical development is sorely needed. The problem here is that consideration of Internet issues tends to have been marginalised within disciplines (see Margetts, 2010 for a discussion of how this has occurred in political science and public administration). Meanwhile, a burgeoning amount of practitioner or activist oriented material has failed to provide
normative questions or theoretical frameworks appropriate for developing
the field. It is now time for research that analyses the relationship between
the Internet and policy to emerge from the ghetto and develop new theories
and hypotheses of contemporary public policy. We expect this new journal
to play a part in this development.

Finally, as discussed above, Policy & Internet will undertake the
difficult task for an academic journal of spanning a range of disciplines. It
recognises that policymaking is an inherently multi-disciplinary activity and
takes up the challenge that the Internet poses to virtually every academic
discipline and to policymakers from every sector. That means it will
represent a meeting of different ‘tribes’ of scholars, tribes that do not always
find it easy to communicate or even respect each other’s work. It is a
challenging task, but an exciting one. The pay-offs can be large in terms of
feeding back into disciplinary specialisms; the type of data that the Internet
can generate provides unprecedented opportunities to test theories and solve
puzzles in our understanding of social behaviour.

Researchers with an especial interest in the Internet will be
accustomed to face some or all of the challenges outlined above. But I hope
that researchers whose primary focus is not the Internet will also read
articles from this journal. It is down to those of us who specialise in this field
to reach these people as well, to ensure that the kind of theories and methods
that are exhibited here penetrate our disciplines and reach across the policy
field.

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