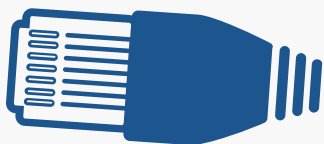


US POWER AND THE INTERNET IN INTERNATIONAL RELATIONS

THE IRONY OF
THE INFORMATION AGE



MADLINE CARR



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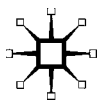
US Power and the Internet in International Relations

The Irony of the Information Age

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*For my family, Joan, Reg and all the Francis women – you
know who you are*

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1

Introduction

Over the course of the past two decades, much of the world has developed a dependence upon an unsecured, open computer network for communications, financial transactions, military weapons systems, critical infrastructure, commerce and diplomacy. Despite the pervasiveness of the Internet and its importance to a wide range of state functions, we still have little understanding of the implications of this technology for power in the context of international relations (IR). How does Internet technology relate to other material elements of state power like the economy and the military? What are the implications for social power factors like legitimacy and authority? Why do states adopt different approaches to Internet technology? And does the Internet produce universal outcomes or does its impact on state power differ depending on context? Answers to questions like these are essential to the analysis of what this dynamic technology means for our understanding of state power in the information age. However, the complex ways that Internet technology is embedded in civil, political, economic and military systems in developed states mean that this has proven extremely difficult to analyse with any clarity in a generalizable way.

Existing IR theories of power, developed in the context of industrial technology, have struggled to incorporate the Internet and address these questions. For much of the 20th century, scholars of IR have approached the relationship between power and technology in a relatively stable and consistent manner. Technology has been largely understood as a constitutive and material element of state power. Its military and economic relevance has led to an understanding of technology as a mechanism through which power (or security)-seeking states pursue relative advantage by the development of more efficient production methods (economic power) as well as advanced weaponry (military power) (Morgenthau, 1978, p. 322). This has been the predominant view

through major technological shifts including the industrial revolution and the emergence of nuclear technology. Even as IR power theories broadened to incorporate social elements as well as material factors, a singular, narrow approach to technology has prevailed. This approach is manifestly inadequate for the study of the relationship between state power and new technology like the Internet.

In a unique way, information and communications technology (ICT) more, broadly, and the Internet, specifically, have led to a power paradox which forms the central focus around which this book emerged. President Obama has referred to the fact that those states which have most successfully adopted and exploited the opportunities afforded by the Internet are also the most vulnerable to the range of threats which accompany it as 'the great irony of our Information Age' (Obama, 2009b). Power-enhancing outcomes such as economic growth, advances in public diplomacy and the revolution in military affairs have to be balanced against the theft of intellectual property, attacks on critical infrastructure and the circumvention of conventional military force by asymmetric actors. No previous technology has been regarded concurrently as a source of power and vulnerability in quite the way that the Internet has.

In addition, Internet technology affects many diverse state systems and functions which make it difficult for analysts to sort through the implications to arrive at any kind of definitive answer about what the Internet means for state power. Technological developments which are beneficial for the online economy may be detrimental to cyber security. Those which enhance cyber security may undermine norms and values such as human rights or civil liberties. Technology policies that the telecommunications sector regards as essential may stifle innovation in software and applications development. Misaligned legal frameworks for dealing with online crime coupled with the capacity for actors to remain anonymous over the Internet undermine the state's monopoly on violence and make distinctions between crime, terrorism and state belligerence difficult or impossible.¹ These factors combine to render conventional approaches to understanding the relationship between technology and power in IR less useful than they may have been in the context of industrial technology.

Polarized literature

Viktor Mayer-Schöenberger and Gernot Brodnig write that the information age is 'opening a new chapter in defining and understanding

international affairs' (Mayer-Schöenberger and Gernot Brodnig, 2001). Much of the literature which has sought to engage with this 'new chapter' has done so through existing theory which is not able to accommodate the distinctive features of ICT. Johan Eriksson and Giampiero Giacomello have observed this suggesting that too much work in this field had been primarily policy-oriented with 'little or no ambition to apply or contribute to theory' (Eriksson and Giacomello, 2006, p. 235).

Existing literature on the relationship between power and new technology in IR tends to fall into two broad categories. Some scholars regard ICT as simply an extension or enhancement of existing technology and therefore reinforcing existing power structures. Many studies which take this view are conducted with a rigid adherence to conventional military concepts such as 'deterrence' and 'arms control' – neither of which have particular relevance to ICT. The vocabulary employed to discuss issues of 'cyberwar', 'cyber-terror' or 'information warfare' is a product of Cold War military concepts blended with computer gaming terminology and leads to the commodification of information.

Mary Kaldor elaborates on this in the context of the revolution in military affairs which she argues is conceived of within the 'inherited institutional structures of war and the military' (Kaldor, 2007, p. 3). She argues that within this structure, new techniques are perceived of as developing in a more or less linear extension from the past. ICT becomes another 'artefact' of power to be understood in the same way we have previously regarded new missile technology or energy sources (Rothkopf, 1998, p. 325). This literature ignores important and unique aspects of emerging technology which impact on its relationship to power in IR in diverse ways. These include the integration of the technology into civil society which broadens the range of interests that politicians must take into account, the decentralized drivers of innovation which make future developments of the technology somewhat unpredictable, and the complexities of states sharing and relying upon a central, unified system.

The second broad category of literature concerned with the relationship between power and new technology in IR regards this technology as a transformative force. This is particularly evident in the literature on the democratizing nature of the Internet and changes to state sovereignty – both of which have attracted significant scholarly attention (Berman and Weitzner, 1997; Katznelson, 1997; Barney, 2000). Many studies have concentrated on the manner in which technology like the Internet has impacted on state power by eroding the institution

of sovereignty. The general emphasis in these debates is that information technology is undermining state power in a variety of ways. Prominent among these are the proliferation and organization of non-state actors which compete for power with states and the challenges of state control over extraterritorial issues which stem from interconnected networked systems. This literature is predominantly concerned with the way that the Internet affects the state's changing relationship with individuals and the non-governmental and private sectors. Of these, amendments to the domestic power dynamics between civil society and the state have been most thoroughly investigated – as demonstrated by the response to the 2011 revolutions in the Middle East. While many felt that social networking tools had been instrumental in the success of the protest movements, others remained unconvinced, arguing that the same technology had been used by the repressive regimes to track the protests (Shane, 2011; Ward, 2011). This debate was epitomized in the 'Shirky/Morozov' debate which pitted a utopian view of the Internet which regarded these tools as liberating and democratizing against a dystopian view which regarded them as tools of state surveillance and repression.²

This particular debate was specific to the Middle East revolutions, but it is indicative of these two broad approaches in the literature: one that regards Internet technology as an extension of industrial age technology with regard to state power and the other that regards it as transformative. Both sides of this debate adopt a 'universal effects' approach to Internet technology. If one focuses on the Internet as a new realm or commons in which technologically advanced states may exercise power – through highly sophisticated surveillance, through information and cyber warfare strategies, through the efficiencies and advantages which the Internet offers the state economic apparatus and through the promotion of particular values – one might conclude that the Internet reinforces existing power structures (Mussington, 1997; Hughes and Wacker, 2003, pp. 139–61). Conversely, if one focuses on the many ways in which the Internet undermines state power – by turning those same surveillance techniques against the state, by empowering non-state actors, by reassigning the functions of the state and (through anonymity) by affording individuals access to the same 'weapons' as the state – one might conclude that the Internet is a democratizing or liberating technology (Smith and Naim, 2000; Deibert, 2002; pp. 143–59; Litfin, 2002). In fact, both of these approaches instil agency in the technology, and this leaves us only to argue over which view we find more compelling. Do those factors that reinforce state power outweigh

those factors that undermine it, or the reverse? How would we begin to assess that?

Examining state intentions

When we acknowledge the wide range of variables at play in calculations about power and the Internet, it becomes clear that approaches that refer to the Internet as either ‘empowering’ states or as ‘devolving power’ from the state have skipped an important analytic step – one in which they examine closely the specific ways in which actors intend or expect this technology to enhance their power. An alternative approach (and the one which drives this study) observes that Internet technology is not discriminating – it can be used to enhance or undermine state power, in a multitude of ways and simultaneously. The Internet then is neither empowering nor disempowering. The Internet does not have a set of values or a purpose – those emanate from our interaction with the technology. In this view, the Internet is an *expression* of the interests and values of those who engage with it.

Just as international political economy would be regarded as theoretically impoverished without the incorporation of economic theory, understanding power in the information age requires engagement with theories and concepts applied to the relationship between society and technology. The philosophy of technology provides just such a mechanism as it focuses on human interaction with technology. This literature asks questions like ‘how does technology impact upon power and how does power shape technology?’, ‘does technology follow a pre-ordained developmental path?’ and ‘if so, are we powerless to stop it?’ These are important questions for IR because understanding power relations in the information age necessarily involves understanding the relationship between new technology and state power.

Scholars working in the philosophy of technology have developed a range of conceptual approaches and methodological tools to aid the investigation of these questions. One of these, the social construction of technology, forms the basis of the conceptual framework developed in this thesis for the analysis of the case studies. This cross-disciplinary approach retains a connection with the big questions in IR (in this case, power) while introducing a much more nuanced and sophisticated theoretical approach to technology which allows the analysis to move beyond the long-held assumptions that technology is an *artefact* which *impacts* upon power.

This approach shifts the analysis from a focus on ‘what technology *does to* state power’ – which, as the previous pages have indicated, can vary widely from state to state and even from issue to issue – to a more holistic approach which investigates ‘how states *engage with* technology’ in the context of conceptions of power. The advantage of looking at how conceptions of power influence and shape technology rather than focusing on the outcomes is that it moves the debate away from assumptions that technology has a universally applicable impact. In fact, politicians have to decide which elements of state power are most important when making Internet policy. They sometimes have to choose between privileging one conception of power over another. Therefore, looking closely at the drivers of Internet policy can tell us not only about *technology* but about *power*. As will be established in Chapter 2, the ways in which a given technology develops can provide insight into the locus of power as the interests of some actors are inevitably privileged over others. This approach provides insight into how different conceptions of power compete in these debates and why certain conceptions prevail in some cases and not in others.

This book relies upon three essential elements of the conceptual framework which is fully developed in the following chapter. First, IR theory provides a starting point for the analysis of power. There is no single theory of power which proved most suitable or helpful for this study. Because the research dealt with *conceptions* of power, it was necessary to remain open to a range of views. The case studies demonstrated the utility of this approach as politicians expressed multiple conceptions of power – sometimes in the context of a single issue – and this allowed the research findings to be guided by politicians’ conceptualizations rather than a particular approach to power.

The second element of the conceptual framework is the philosophy of technology literature that identifies the range of *approaches* to technology. This is essential first to illustrate the long-held assumptions about technology which are endemic in IR literature which deals with the relationship between power and technology. In addition, it provides a conceptual language for engaging with how politicians approach Internet technology. These are not self-consciously expressed positions; they are assumed just as approaches to power are assumed. However, it is important to remain aware that these approaches to technology carry with them a whole set of assumptions that inform political decisions about technology. The philosophy of technology provided a means to identify these as they emerged in the case studies.

The third element of the conceptual framework developed in this thesis is a set of methodological tools borrowed from the social construction of technology – one of several philosophical approaches to technology. Specifically employed in this study are the ‘reverse salient’ and the ‘relevant social group’. These are used in the research design to set the parameters and to generate the case studies. They also proved useful within those case studies when it became clear that there was not one single conception of power and/or approach to technology which was driving the political decisions about that particular aspect of Internet technology.

The ‘reverse salient’ can be understood as a perceived problem or point of lag in a technological system – something which prevents it from fulfilling its ‘potential’ (Hughes, 1989, p. 73). Social constructivists have found that identifying an actor’s normative assumptions about technology – particularly what they regard as the ‘problem’ or reverse salient of a given technology – can lead to insights into how they conceptualize a whole range of other elements of social life. Wiebe Bijker uses the example of bicycle chain guards to illustrate the utility of the reverse salient (Bijker, 1995). Bicycles in the 19th century did not have guards over the chain running between the pedals and rear wheel. They were not found necessary because only men rode bicycles and trouser legs were not prone to being caught in the chain. In the late 1800s, women began to ride bicycles and, finding their long skirts became easily entangled, the exposed chain came to be regarded as a ‘problem’ resulting in the development of a chain guard.

Bijker points out that the reverse salient of the bicycle chain emerged for social reasons rather than technological (or design) reasons. Furthermore, an analysis of the way this reverse salient prompted innovation in bicycle design reveals much more about how social systems (in particular, perceptions of gender restrictions) were changing at that time, than it does about technology. This example serves to illustrate the important point that social constructivists make about technology, that is, that technological change reflects wider social, cultural and political change and for this reason, its analysis can provide insight into important issues including understanding power in IR.

In this study, the reverse salient has been applied for two purposes. First, it has been used to identify three empirical case studies (to be discussed more fully in the next section). The reverse salient has also been used *within* the case studies to provide a lens through which to examine the empirical data. Each of these three case studies was analysed to determine how politicians perceived the issue as a problem relating to

US power. This included identifying which conception (or conceptions) of power they employed in the debates, which approach to technology they engaged with and how these conceptions and approaches impacted on the development of the technology. The research revealed that politicians engage with multiple conceptions of power in these case studies and so the reverse salient was useful at this level to help distinguish the (sometimes competing) ideas driving policy decisions about the specific aspect of Internet technology.

In addition to these two ways in which the reverse salient contributes to the methodology of this thesis, there is a second important tool drawn from the social construction of technology employed in this methodology. The 'relevant social group' is a mechanism for focusing on whose needs or preferences are being privileged in decisions about technology. MacKenzie (1996, p. 6) stresses that although it may seem that a decision about technology is 'best', we must ask the question 'best for whom?' Different actors or groups of actors may have very different responses to a particular technology as did men and women to the bicycle chain.

Certainly these distinctions need not be this stark. Factors like gender and class are obvious examples for illustrating this point but any two people of similar circumstances may have different responses to technology. Scholars from the social construction of technology argue that it is necessary to be clear about this in any study because in the context of technology, priorities and values can vary widely from one group or actor to another. Within the case studies, the concept of the relevant social group sometimes proves to be a useful mechanism for understanding how politicians regard the Internet as linked to US power through the way they privilege the needs or priorities of one section of US society over another. A focus on the relevant social group in these instances helps to clarify how politicians conceptualize US power and which factors they regard as most significant when formulating Internet policy.

Scope and focus

In seeking to understand the relationship between the Internet and state power, the United States offers a unique opportunity for an historical study. The United States has played a seminal role in the evolution of the Internet and with over four decades of history in the development, implementation and management of Internet technology, it continues to globally influence key sectors of it. How the United States has dealt

with the rapid development and implementation of the Internet and how it has sought to shape it in such a way as to enhance US power need to be understood not only through a snapshot of current circumstances, but through the analysis of the ideas and intentions of those politicians who facilitated or instigated the initial research phase as well as those who have continued to influence and shape the implementation and the development of Internet technology.

Conceptions of US power have intersected with the Internet's growth at many stages and over many issues over the past two and a half decades. Initially funded by the US Department of Defense (DoD), the Internet evolved as a joint military/academic project before being made available for commercial activity. The ideas and values of the early developers of the Internet are fundamental to its structure and design and are therefore constantly reinforced through its use (Lessig, 2006a; Zittrain, 2008). Based on 'rough consensus' and bottom-up development guided predominantly by highly regarded technicians, the Internet consists of agreed standards and code which provide its structure and functionality. Paradoxically, considering the role of the DoD, this technical evolution has come to be regarded as quite separate from state concerns. Consequently, the fact that these ideas arguably run counter to IR norms and institutions such as state control, sovereignty or hierarchical rule has been of little concern in the dynamics of the technical community. However, the rapid 'informatization' of the past two decades has made it very clear that Internet code and architecture *is* deeply political and how it is conceptualized and shaped has very real implications for states and the international system. This is significant for understanding the political implications of Internet technology and demonstrates that there already exists a 'political history of the Internet' worthy of scholarly attention.

The second reason why this study takes an historical approach is because there is a persistent focus in the relevant IR literature on contemporary issues. This provides valuable insight into the particular concerns of a given social context and time. However, without engaging with the debates, perceptions and decisions which accompanied the emergence of these issues, the arguments they put forward remain suspended in time with no connection to the past and no capacity to envisage a future. Mackenzie argues for an historical approach to studies of this nature because rather than a linear, predetermined path, he argues that looking at the history of technology demonstrates that there were a number of options all along the way – what he refers to as a 'constant turmoil of concepts, plans and projects' (MacKenzie, 1996, p. 6).

In bringing together the political history of the Internet, it becomes evident that many key decisions have been made by US politicians about how the Internet could or should function. In addition, a close analysis reveals how normative ideas about the relationship between US power and the Internet have influenced those decisions.

Finally, technology is frequently studied in an historical context because the history of technology can tell us much about what people wanted and how they viewed the future. It can also reveal much about how their perception of 'problems' with technology changed over time. Marita Sturken, Douglas Thomas and Ball-Rokeach (2004, p. 1) write that 'the meanings attributed to new technologies are some of the most important evidence we can find of the visions, both optimistic and anxious, through which modern societies cohere'. By taking an historical approach, it is possible to encounter change, continuity and patterns – all of which not only better equip us for understanding the current state of the relationship between power and new technology in IR but provide the basis for studying future change and continuity. This book argues that states can and do shape Internet technology. Therefore, understanding how they have done so in the past is essential to conceiving of how they may do so in the future.

A range of material has been examined in the research of these case studies. A major component of the empirical material for this study has been Congressional hearings and because they may be less familiar to readers than more conventional sources like speeches or policy papers, it is useful here to elaborate briefly on how these hearings function.

Congressional Committees are formed in order to create a body of expertise within Congress which is then able to offer broader advice. Committees are able to commission reports, to call hearings and to summon and interrogate witnesses so as to gain the knowledge and expertise they feel they need in order to formulate and vote on policy. They then report back to Congress, and these reports are often submitted alongside a proposed Bill as supporting documentation. As politicians have to vote on many issues about which they may have limited practical knowledge, they rely to an extent on the advice of their colleagues who sit on relevant committees. These Committee assignments change over time sometimes as a consequence of restructuring and sometimes as relevant issues rise or recede in importance.

Hearings are called by Congressional committees for a number of reasons including the investigation of pertinent issues, the need to gather information on or debate a piece of proposed legislation, or as a means of conducting oversight of a government body or department. Prior to

the hearing, a list of witnesses is drawn up. These can include government employees, experts and people affected by the issue. Generally, the hearings call witnesses from a range of views but it can happen that the witness list is biased in a particular direction.

Hearings open with a statement by the chair followed by statements by a number of committee members. These statements are often used to frame the concerns each member has about the subject of the hearing and often how they frame those concerns is as relevant for this research as the concern itself. Once these opening statements are concluded, the hearing moves to testimony by the witnesses followed by a question and answer session. During this time, committee members are free to ask candid questions of the witnesses either about their testimony or about related issues. Due to its unscripted format, these exchanges between committee members and witnesses can be extremely enlightening. They provide a means of accessing the conceptions, concerns and priorities of politicians in a way that formal speech does not always allow.

Policy documents and speeches, though less frank, serve two purposes for this research. First, they provide an 'outcome' to the debates which transpire in Congressional hearings. Linking policy outcomes to debates can help to illuminate which approaches to power and technology prevail. In addition, policy documents often become the loci of further debate which is one of the benefits of adopting an historical approach to this study, discussed briefly below and at more length in the following chapter.

A third source of empirical material is the legislative record. This includes Bills proposed as well as Bills passed into law. Legislative proposals are very complex and the reasons behind the failure of a particular bill can be varied and, in many cases, external to the issue at hand. However, an analysis of how politicians propose law is very useful in working to understand how they normatively approach issues of technology in the context of US power.

Finally, as part of this research, a small number of interviews were conducted, particularly with senior policymakers who worked on Internet-related policy in the late 1980s and early 1990s when documentary material was somewhat less readily available.

The case studies

Given that Internet technology has implications for so many aspects of state power and in diverse ways, an ordered approach to generating the

case studies was necessary. Through the examination of Congressional hearings, policy documents, speeches and debates over the past 25 years, a number of Internet policy issues emerge as key 'problems' for US politicians – in that, they generated significant and complex debates. Of these problems, some had no clear implications for state power. Examples of these are the use of the Internet for primary school education, the use of the Internet for medical records and protecting children from obscene material or predatory behaviour on the Internet.

Of the problems which politicians perceived as having clear links to US power, three stood out as issues which have been consistently regarded as a significant problem for state power. These were cyber security, Internet governance and network neutrality. These issues were also identified through an assessment of the technology itself. Some technological issues have quite obvious implications for power in IR while others are more obscure or still evolving. The case studies have all been consistently referred to by politicians as having significant relationship to US power through a mix of material and social factors. In addition, they are issues acknowledged by the technical community to have very serious implications for how the Internet develops.

One of the obvious areas of concern was the consistent political anxiety about security. Although politicians had been aware of security threats to DoD systems from the 1980s, the adoption of the technology by the commercial sector and by private individuals introduced a whole range of evolving cyber security problems. Successive administrations have struggled to find a balance between the demands of cyber security which compete with norms and values such as privacy, freedom of information and more recently, human rights. The long-standing conviction of politicians that cyber security has implications for US power on a number of levels led to the generation of the case study on cyber security.

A second consequence of the rapid uptake of Internet technology was the need to implement governance structures without fully understanding their implications. The notion that the Internet should be linked to US economic power rather than military power was promoted by the 'Atari Democrats' including Senator Albert Gore Jr., who would prove to be a key figure in political approaches to Internet technology. In the mid-1990s, the Clinton–Gore administration commercialized and privatized the Internet leading to an exponential increase in the number of people accessing it and the amount of data travelling across it. This introduced a range of problems, one of which was how to effectively and

efficiently govern the names and numbers database – the Domain Name System (DNS). The debates around this and the problems associated with US power led to Internet governance being selected as one of the case studies for this thesis.

Finally, changes in telecommunications legislation which directly impacts on how the Internet continues to develop not only in terms of technology but also in terms of our interaction with it have prompted a series of debates about how the Internet *is* and how it *should* be. These normative debates are linked to concepts of US power through material and social factors. In the United States, there are some factors which have made refining laws to regulate new technology very difficult to resolve. These developments and the contentious views about how best they should be managed in ways that would promote – or at least not undermine – US power resulted in the identification of the case study on network neutrality.

Contribution

This project is able to contribute on both a theoretical level and an empirical level. While IR scholars have taken some steps to incorporate recent technological change into theories of power, it has been done without adequately engaging with either technology theory or emerging and complex technical issues. This work has, therefore, tended towards dystopian or utopian conclusions without developing a useful conceptual framework with which to examine these pressing issues. By incorporating the philosophy of technology which provides theory and concepts for engaging with the social implications of technology, and demonstrating its utility in the analysis of state power in IR, this study takes an important step forward. It illustrates how much of the literature has been driven by assumptions about technology – particularly the assumption that technology has a universal effect on power regardless of social or political forces. The conceptual framework developed and employed in this study can contribute to IR scholarship which investigates questions dealing with new technology by moving debates beyond questions about whether technology like the Internet enhances power more than it undermines it.

On an empirical level, this project contributes in a number of ways. First, the analysis of the political debates around Internet technology reveals the multifaceted and contradictory nature of US power in ways that studies which look at power through realist, liberal or constructivist

lenses are not able to. Politicians take into account many factors of power when they make critical decisions about Internet technology. These conceptions of power can lead to conflicting policy choices and when they do, politicians privilege one conception of power over another.

Second, the three case studies reveal how conceptions of power have shaped and influenced these three aspects of Internet technology. This is an important shift away from the view that technology has its own path and produces universal effects – a view which pervades much of the academic literature on the Internet and politics. Observing how the Internet has been shaped by political conceptions of power in the United States – sometimes consciously and sometimes unconsciously as a function of ideas and norms about power – provides a model for a similar empirical analysis of other states and other technology issues.

Finally, the empirical material provides a narrative of the ‘political’ history of three aspects of Internet technology which is absent in other historical accounts. Despite states’ increasing dependence upon and interdependence over the Internet, the political history of how this technology was initially conceived, developed, governed and managed over time has not been critically examined. Although ‘histories of the Internet’ abound, they are almost exclusively concerned with documenting key technicians and developers and attributing their achievements and contributions to the code and architecture now in use. However, the political forces surrounding those developments are rarely referenced in these accounts and given no substantive place in understanding the progression of the Internet from a military project to a global information and communications network. As this thesis shows, early Internet research was largely funded by government research institutions, the infrastructure was owned and operated by government agencies until it could be privatized in the United States, and political decisions continue to shape and influence the development of Internet technology. The empirical material in this book draws out this political history and contributes a significant aspect of the development of this important technology.

This book does three things: it explains how US political leaders’ conceptions of power interact with approaches to technology to shape and influence the development of complex technological systems like the Internet. It also builds a conceptual framework for future studies of the relationship between power in IR and ICTs. Finally, it tells a