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International Cyber Society - Governing the Internet

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| Nils G. Indahl. International Cyber Society - Governing the Internet. 2009. hprints-00396381

HAL Id: hprints-00396381

<https://hal-hprints.archives-ouvertes.fr/hprints-00396381>

Preprint submitted on 17 Jun 2009

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Master's thesis

Nils G. Indahl

International cyber society

Governing the Internet

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Submitted: 28/11/08



Summary

The thesis analyses the Internet, a political space that transcends state borders. The Internet is not chaos, but has emerged as an efficient system of governance with clear standards, norms and values. At the same time, it is a system without a centralised state authority.

The three classical paradigms of *realism*, *rationalism* and *revolutionism* are applied in analysing the Internet as an evolving case.

The following two research questions are explored:

1. Which of the three classical approaches best explains the development of the Internet?
2. Is the emergence of the Internet enhancing the power of the individual at the expense of the state?

Using the three classical paradigms, pluralist theories of democracy, and Austrian coordination theory, the agenda is to find out whether the Internet has shifted the balance of power between the individual and the state. Has the Internet as a political space, in other words, given the individual opportunities to bypass state power? Has it enhanced the ability of the citizen to coordinate and act? Finally, the thesis addresses the possible reactions of the state to this apparent challenge to state sovereignty in the image of the individual, the state, and the international society of states.

The Internet emerged as a spontaneous order between 1973 and 2003 as the result of contributions by various members of the international scientific community. The first phase in the evolution of the Internet is aimed at the world society, mankind, in what is mainly a *revolutionist* normative approach. A *rationalist* approach can be detected in the attempt by the Internet pioneers to transfer control of the Root file to the International Telecommunications Union - a part of the UN system - in 1997. As the economic and political importance of the Internet increases, a decidedly *realist* approach becomes evident.

Should a national or world government destroy the efficient and free working of the Internet, the netizen may make use of his inalienable right to establish new information spaces outside state control. The technical standards – as well as norms and values – that have emerged as the Internet over the last 35 years, makes it possible for mankind to establish as a digital commonwealth what Kant called the *ius cosmopolitanum*.

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Order is not a pressure imposed upon society from without, but an equilibrium which is set up from within

J. Ortega y Gasset in *Mirabeau o el político*

INTRODUCTION

Even though human beings have always tried to reshape the physical spaces around them, social theory has taken a spacial turn in recent years. Social space does no longer presuppose a physical space, i. e. as a physical space where bodies can meet in the flesh. Non-geographic spaces can be a space because social space is practised through human social interaction (Saco 2002).

In this paper I shall be analysing a political space that transcends state borders, namely the Internet. The Internet is not chaos, but has emerged as an efficient system of governance - with clear standards, norms and values. At the same time, it is a system without a centralised state authority.

This political space also involves states and the relations between them. There seems to be broad consensus in international relations theory that order *does* exist in international politics despite a state of anarchy (Bull 1977; Keohane and Nye 1977; Waltz 2001), but much less agreement on what is the relation between political systems³ within the borders of a state and political systems that transcend the national political systems (Kelstrup and Williams 2000).

The governance of the Internet is constituted partly by structures that are unique to the Internet, but also by behaviour that can be recognised in national and international politics of the past. English School⁴ writers have given ample space to the study of states that form a system. Less attention has been given to those

³ By 'political system' I don't here necessarily think of the systems theory of David Easton and the 'input' and 'output' of authoritative decisions, even though it might very well be a relevant approach to an analysis of the Internet. Morten Kelstrup has pointed out that David Easton uses the term 'society' in two different senses, in a broad and a narrow definition. In the narrow definition, 'society' means a collection of individuals that is connected by a certain, institutionalised system and certain authorities, normally a state. In the broader definition, 'society' means any social community that is bound by collective decisions. Easton calls them 'parapolitical systems'. Kelstrup says that, in principle, one may imagine the existence of a broader democracy without a political democracy in the narrower sense, i. e. in anarchical societies without a separate system of authority (Kelstrup 1999, p. 94). By 'political system' I shall, throughout this paper, be referring to the broader definition of society.

⁴ The term 'English School' shall be used here as a description of those academics and practitioners that were attached to *the British Committee for the Theory of International Politics*, as well as their works and discussions. During the period of 1959 – 84, the group met first under the chairmanship of Herbert Butterfield; later under Martin Wright, Adam Watson and, finally, Hedley Bull. See the introduction pp 2 - 5 in Watson, Adam (1992). *The Evolution of International Society*. London, Routledge, Dunne, Timothy (1998). *Inventing international society: a history of the English school*. Houndmills, Macmillan in association with St. Antony's College Oxford.

independent political communities that are not states systems and that have preceded – and are likely to succeed – the present international society of states (Bull and Watson 1984).

Hedley Bull claims that international order could have been organised in other ways than through universal political organisation.

(...) and a standing question is whether world order might not have been better served by such other forms (Bull 1977).

He adds:

Moreover, it is reasonable to assume that new forms of universal political organisation may be created in the future that does not resemble those that have existed in the past (Ibid).

Writers in the classical tradition do not assume that *international society* will remain unaltered forever. In the same way that other systems have preceded the present one, it will be challenged, constantly, by events and even alternative systems. It may adapt to, or even be replaced by, such alternative systems. Human actors are the ultimate normative references for international society. By *international society* we are not referring narrowly to the *international society of states*, but in a wider sense to the *origin* of international systems as defined by Hedley Bull and other writers in the classical tradition. In particular, we are referring to the *norms and values* underlying international society (Ibid).

I argue that the Internet is an example of a spontaneous, emerging order, rather than a designed order. At the same time, this political space may – in some areas – challenge the state's monopoly on power, and thereby potentially the fundamental cornerstone of the international society of states. The Internet can be seen as an international political system without a world government, and in this sense it is an anarchic system. But the Internet can also be seen as the object of state interests, by which governments wish to extend their political interests to the workings of the Internet.

During most of 2005, a discourse was taking place between IGOs, NGOs and governments in the run-up to the World Summit on the Information Society in Tunisia in November 2005. Demands were mounting from several UN members to transfer the ultimate control of the Internet to the United Nations, or some IGO where non-US governments were represented. At stake was nothing less than “the governance structure and continued stability and sustainability of the Internet” that, in

the words of the U. S. Secretary of State, Condoleeza Rice, were “of paramount importance to the United States” (Rice and Guitierrez 2005).

At the time, the UK government held the European Union presidency, and the EU had taken a middle position between the US and critical UN member states, led by Brazil, Libya and Iran. In her letter to Mr Straw, Ms Rice appealed to the EU that it change its position in favour of the US view, and in rather undiplomatic language:

The history of the Internet’s extraordinary growth and adaptation, based on private-sector innovation and investment, offers compelling arguments against burdening the network with a new intergovernmental structure for oversight. It also suggests that a new intergovernmental structure would most likely become an obstacle to global Internet access for all our citizens. It is in this spirit that we ask the European Union to reconsider its new position on Internet governance and work together with us to bring the benefits of the Information Society to all (Ibid).

The EU delegation dropped its plans for an inter-governmental forum, and instead settled for an informal meeting forum.

An important feature of the English School approach is to resist the tendency to exaggerate the degree of novelty in the international system. Features that appear “new”, write Alderson and Hurrell, “look more familiar when approached from a sufficiently long historical perspective” (Bull, Alderson et al. 2000). In order to maintain the link with political systems of the past, I shall be drawing an analogy with the Icelandic Commonwealth that existed between 930 and 1263. Like the Internet, it was an order without a state, and one which had to exist surrounded by a different and more universal political organisation, an international society of states (Bull and Watson 1984).

The existence of the Icelandic Commonwealth was ended by the area’s hegemon, Norway. A present-day analogy may be the way in which the United States seeks to extend its political influence over the Internet. It is an open question whether the dominant world power will allow the Internet to exist as a separate system, or whether the Internet simply will be absorbed into the more universal political organisation, such as was the case with the Icelandic Commonwealth when absorbed by the Kingdom of Norway. I shall be pursuing this discussion towards the end of the paper.

In the early writings of the Internet pioneers we shall see that the theoretical emphasis was on the norms and values of individual actors rather than those of state actors. Similarly, in the Icelandic Commonwealth, individual chiefs and sheriffs would seem to matter more in the political system than collective entities (Byock 1990).

I see Martin Wight's three classical paradigms as a way of reconciling the need to analyse state behavior and political right at an aggregate level with political theory and rights at an individual level. Even though Wight used the three classical paradigms to describe the relationship between states, it is interesting to use the classical paradigms in describing the relationship between the individual and the state, as well as the relationship between the Internet and the states. Indeed, the discussion regarding whether the individual should take precedent over the state – or vice versa – was the main focus of two of the classical writings: John Locke's *Second Treatise of Government* (Locke 1993), as well as of Thomas Hobbes' *Leviathan* (Hobbes 1968).

THE THREE APPROACHES

The three classical paradigms are defined by Martin Wight as *realism*, *rationalism* and *revolutionism* (Wight 1991). These terms cover different ideas concerning:

1. National self-interest and statemanship (Machiavelli and Hobbes)
2. International law and norms (Grotius)
3. One global political society (Kant)

Realism considers political rights to be possessed by each individual actor. Realist actors are free, competitive and sometimes fighting egoists. The actor is free to pursue any goal without paying attention to moral or legal constraints. If moral or legal concerns exist in politics, they can only be the goals of the state.

Rationalists, on the other hand, view politics as a community between actors and their common norms and values. The political system is a civil society of members with legitimate, sometimes conflicting interests. They attempt to regulate possible conflicts through law and negotiation. This international society is changing over time. Rationalism, therefore, is explicitly historical and evolutionary.

Revolutionism, or the universalist tradition, is the third classical paradigm and can be seen in the Reformation, the French Revolution, the Communist revolution, the Islamic revolution and the Green revolution. The human being always precedes institutions. Consequently, the sovereign state must always answer to a higher authority: mankind or *universitas*. In the same way as Kant considered sovereignty to be a hindrance for the Renaissance, the existing system of sovereignty is a hindrance for the ultimate values of mankind (Wight 1987).

Barry Buzan argues that the English School is an underexploited resource in International Relations because it is able to link the subject with political theory. The expansion of European international society raises questions about how the norms, rules and institutions of international society interact with the domestic life of polities (Buzan 2001).

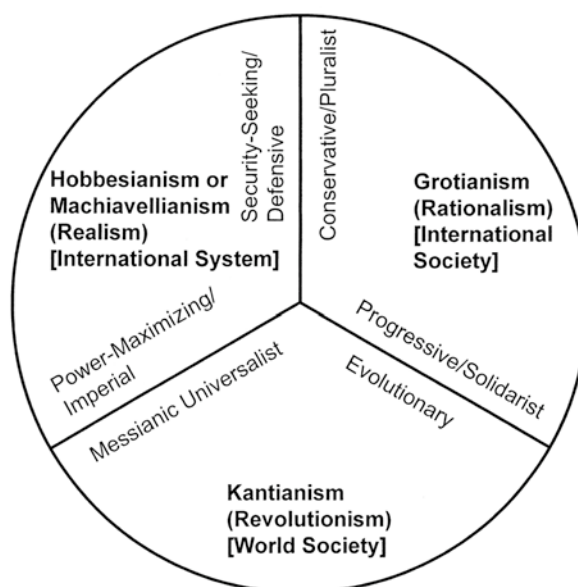


Illustration no. 1: International politics as viewed through the three traditions of the English School. Note: Titles in () are Wight's labels; titles in sharp brackets are the analytical focus; titles along the border zones are where the traditions blend into each other (Buzan 2001).

Bull and Watson's traditional definition of international society is:

A group of states (or, more generally, a group of independent political communities) which not merely form a system, in the sense that the behaviour of each is a necessary factor in the calculations of the others, but also have established by dialogue and consent common rules and institutions in their conduct of their relations (..) (Bull and Watson 1984).

The main part of the work of the English School has been to uncover the nature and function of international societies, and to trace their history and development. Once the idea of society was conceded, it was necessary to start thinking of *world*

society, “the idea of shared norms and values at the individual level, but transcending the state” (Buzan 2001).

Although each perspective is conceptually and methodologically distinct, they blur into each other on the boundaries. The three perspectives are in continuous coexistence and interplay. At different times and places through world history, they may be more or less strong in relation to each other, according to Martin Wight (Wight 1991).

PROBLEM DEFINITION

In this paper I shall be analysing a political space that is not physical, but digital⁵. In the particular context of the Internet, I shall be exploring the following two research questions:

1. Which of the three classical approaches best explains the development of the Internet?
2. Is the emergence of the Internet enhancing the power of the individual at the expense of the state?

Using the three classical paradigms, pluralist theories of democracy, and Austrian coordination theory, our agenda is to find out whether the Internet has shifted the balance of power between the individual and the state. Has the Internet as a political space, in other words, given the individual opportunities to bypass state power? Has it enhanced the ability of the citizen to coordinate and act? Finally, we address the possible reactions of the state to this apparent challenge to state sovereignty in the image of the individual, the state, and the international society of states (Waltz 2001).

METHODOLOGY

In the first part of the paper, I shall be telling the story of how the Internet developed as a collection of standards, protocols and conventions. I shall also address the normative justifications that, grounded in the three classical traditions, seem to underpin the emergence of the Internet and its standards.

⁵ Digital: A description of data which is stored or transmitted as a sequence of discrete symbols from a finite set, most commonly this means binary data represented using electronic or electromagnetic signals (Dictionary of Computing).

In the second part of the paper, I shall be showing how the Internet developed as a system of governance, and how the Internet had an impact on the acting individual in relation to the state in the context of the existing political order. Because of the global nature of Internet transactions, governance of the Internet will necessarily involve the NGOs for which space has been made by the world's states. Governance of the Internet also involves the IGOs that are part of the dialogue within the international society of states. And it involves the interests of individual states. In the discussion, I keep the door open for the possibility that new forms of universal political organisation may emerge in the future and that other normative references may underpin such a future system.

In order to answer the two research questions, I shall continually be using Martin Wight's framework of 'the three traditions' in political thought (Wight 1991) to examine an evolving case, namely the emergence of the Internet. I believe this model of analysis will shed light on the actual and normative development of the Internet as a system of governance. By 'international theory' Wight means something that corresponds to political theory. It is a recognisable subject, half 'politics' and half 'institutions' or 'government' (Ibid).

Approaches to social studies

Social studies has been dominated by three scientific approaches, according to Robert Jackson:

1. **Positivism**, that claims the unity of the natural sciences and the social sciences via a common philosophy and methodology. The positivist researcher gathers data in "data banks" that are used for testing hypotheses and building verifiable propositions (Popper 1957).
2. **Post-positivism**. A reaction to social science positivism in the 1980s and 1990s. Alternatives to the positivist approach, particularly critical theory, postmodernism, and constructivism (Jackson 2000).
3. **Humanism**. A mode of scholarship that prevailed prior to the behavioral revolution and was largely based on historical analysis, legal-institutional scholarship, and political thought. The humanists were comprehensive or holistic in the study of human relations (Ibid).

In Jackson's view, the social sciences are best studied when drawing on several disciplines; largely historical analysis, legal-institutional scholarship, and political thought. Humans are conceptualised as goal-oriented and goal directed actors (Ibid).

For the problem situation in this paper, I shall be adopting the third (and classical) approach. Analyses of aggregate units – such as states or markets - are useful. However, these aggregates cannot be understood without - or outside - the individual agent. According to Peter J. Taylor, it is a shortcoming of political theory that, since 1945, it has been decidedly state-centric. Economic transactions across the world are ultimately measured by statistics that measure the crossing between territories of unprocessed or processed substances. Such statistics fail to reflect the fact that the main value of e.g. a car is not its metals or plastic components, but its design; the know-how that went into its production; and the use-value of the final product (Menger 1976; Rothbard 1993).

The state-centric view of political science becomes even less helpful to the social scientist when we consider that most international trade is now non-tangible and in the form of financial services and electronic transactions. Peter J. Taylor:

... the poverty of state-centric thinking produces narrowly selective social sciences that omit or neglect much that is social. (...) I wish to take this argument a stage further. The claim I make is that state-centric thinking severely disables our capacity for understanding the states themselves (Taylor 1996).

In international politics – even though states are still the constituent actors - states negotiate with non-state actors much of the time. These *transnational relations* involve transactions across state boundaries in which at least one party is not a state. A situation with *complex interdependence* assumes that there are multiple channels of access between societies. They include both state actors and non-state actors. Under complex interdependence, there is no hierarchy of issues. Any issue area may be on top of the international agenda at any time (Keohane and Nye 1977).

In the course of this paper, I shall be arguing that the Internet may be viewed in all three of Martin Wight's perspectives. From a realist perspective, it has many of the characteristics and capabilities of a political system. From a rationalist perspective, the Internet has the potential of emerging as a legitimate, international system of governance; a kind of international covenant of cyberspace. To the revolutionists, the Internet is already that global community of mankind that Kant calls *ius cosmopoliticum* (Hurrell 1990).

THE INTERNET AS A POLITICAL SPACE

The Internet clearly has a physical dimension, in the form of the technological objects that form the network backbone: fibre cables, switches and networked micro processors. I shall be referring to this infrastructure as the technical layer of internet

governance. Whilst an important prerequisite for the Internet as a political space, the physical elements of the Internet are not our main concern.

Sociological theories address the notion of cyberspace as “mental geography” (Benedikt 1991), partly inspired by William Gibson’s novel *Neuromancer* (Gibson 1984). The Internet is seen as a spacial practice that moves bits rather than bodies, and is constituted conceptually by various spacial discourses that are aimed at ordering space (Lefebvre 1991). A neo-Marxist critique has been made of the Internet as a place where more and more of the economy is coordinated through global networks. These networked forms of organisation are replacing vertically integrated hierarchies as the dominant form of social organisation, leaving black holes of social exclusion that Manuel Castells coined the *4th World*. He condenses his view to the statement that “our societies are increasingly structured around the bipolar opposition of the Net and the Self” (Castells 2000). The Marxist economic critique will be briefly addressed under the revolutionist classical approach.

A number of sociologists have been fascinated by the Internet as a network of interconnected users with a strong feeling of fellowship (Rheingold 1994). While important in defining the Internet as a social space, none of these sociological approaches are a prime concern in this paper. Rather, the agenda is to constitute the Internet as a political space. Further, we are concerned with the relation between the Internet and the states, and the governments that represent the states.

What is, then, the nature of the shift taking place in international politics, and which theoretical approaches might shed light on the nature of this shift? The struggle between the state and the individual, that is the recurring theme in John Locke’s and Thomas Hobbes’ main writings, is the starting point of the dissertation’s agenda (Locke 1993; Hobbes 1968). Hobbes claimed that absolute government power was necessary to avoid a war of all against all. The rejection of absolute, unified and uncontrolled state power remains the hallmark of pluralism. Sovereignty, the doctrine that there is and ought to be only one final source of political authority, developed with the rise of absolutist monarchies in Western Europe in the 18th century (Dunleavy and O’Leary 1987). As a challenge to absolutism, American and French thinkers such as Montesquieu, Madison and de Tocqueville tried to balance the power struggle between the state and the individual through constitutional arrangements (Montesquieu, Cohler et al. 1989; Tocqueville and Mayer 1969; Madison, Jay et al. 1987).

Twentieth-century American pluralists prefer scientific political analysis to be tested through empirical observation, preferably in a quantitative form. The aim is to

answer the central question of political science: Who gets what, when and how? (Lasswell 1936). In Robert Dahl's study of New York city politics, he explores whether New Haven was ruled by an *oligarchy* or whether it could be described as a *polyarchy* (Dahl 1961). When analysing the failed attempt to establish an Internet democracy, I shall be drawing on pluralist theory. According to pluralism thinking, *the market-place of ideas* (Mill and Himmelfarb 1974) is expanded and more views from citizens and ground-level groups may increase the legitimacy of what Easton calls *authoritative decisions* (Easton 1965).

Human action and the coordination process

One of the main fields where the emergence of the Internet has had an impact, is in the economic field. Neo-classical economic theory focuses on the allocation of resources under conditions of perfect knowledge and equilibrium. Against this unreachable ideal, the Austrian school of thinkers offers an alternative model – one that seems much more apt at explaining a network economy enabled by the Internet.⁶ Austrian *praxeology* does not mean that the individual is a rational actor in the neo-classical sense. Human action is goal-oriented action to reach the acting man's desire and remove uneasiness as far as possible. Individuals act consciously to reach certain goals. These preferences are individual and different for different individuals at different times. Whether the individual has *satisfied his desire* or not is different for various people and for the same people at various times. *Praxeology* is neutral (wertfrei) in relation to the ultimate goal of individual action (Mises 1963). Rothbard used the term 'psychic utility' (Rothbard 1993). Thus, it would be possible for an individual to have the psychic utility of taking part in a revolution placed high up on his value scale.

Lionel Robbins defines economics as 'the science which studies human behaviour as a relationship between ends and means which have alternative uses'. The quotation indicates that means and goals are given beforehand, and that the allocation of resources may take place by mathematical calculation. Processes such as competition and the price mechanism are not necessary. The allocation equation can be solved by finding equilibrium in a market of perfect competition or be calculated in the computer of the omnipotent state planner (Robbins 1935).

⁶ The description 'Austrian school' is used about Carl Menger (1840–1921) and the group of persons that were attracted to his teaching, especially his subjective utility theory, presented in his 1871 book 'Grundsätze der Volkswirtschaftslehre': Menger, Carl (1976). *Principles of Economics*. New York NY, New York University Press. His most important successors were Wieser (1851–1926) and Böhm-Bawerk (1851 – 1914). The second wave of Austrian economists was taught by the first group in Vienna. Among these were Ludwig von Mises (1881-1973) and Friedrich von Hayek (1899-1992).

In Austrian theory, all information that is necessary for economic coordination is considered private information. The Internet is a way for the individual to make his private information known quicker, and therefore replaces the perceived role of the state as coordinator. In analysing the Internet as a coordinating mechanism for individual preferences, I shall be using Hayek's writings on the price mechanism as an advanced information system (Hayek 1945).

With the help of the three classical paradigms, pluralist theories and Austrian coordination thinking, our agenda is to shed light on whether the Internet has shifted the balance of power between the individual and the state in the existing political order. And whether the Internet as a political space is giving the individual new opportunities to bypass state power.

THE EMERGENCE OF THE INTERNET

I now turn to the two research questions.

In 1994 there were 20 million people using the world wide web, rising to 370 million regular users in September 2008. At the same time, Nielsen Online estimated the *digital media universe* – everybody that was, in practice, able to consume digital media – at 555 million people. A Netcraft survey in November 2008 received responses from 185 167 897 million webhosts worldwide. Every month, 3 million new web sites were added to the Internet. In 2000, the best year of the dot.com era, the total number of new sites was 16 million (Netcraft 2005; Netcraft 2008). A complicated structure of governance is involved in running the Internet; protocols, applications, cross-connected lines and conventions of behaviour.

We may divide the governance of the Internet into three layers of assignment:

Layer	Outcome	Rationale
3	Policy	Right
2	Economic	Rationing scarcity
1	Technical	Coordination

Illustration no. 2: The three levels of assignment in Internet governance.
Adapted from (Mueller 2002).

The three layers of assignment are in many ways interconnected. Technical decisions in the infancy of the Internet - formally the result of the need to coordinate

traffic - turned out to have policy implications. Rationing domain names turned out to have economic consequences and offer business opportunities unforeseen by the technical regulator. Since these decisions had many unintended consequences, stakeholders began to question the right of technical regulators to make decisions that had severe economic consequences, and therefore, implicitly, impinged on the right of netizens – the citizens of the Internet – to influence the development of the Internet.

The technical layer

To ensure that a computer could be identified anywhere on the network, a unique numbering and address system was established. Any computer can be identified through an IP number, e. g. 130.225.126.134 (which is the host computer of the University of Copenhagen). The number is unique and exclusive.

In the 1970s, a heated discussion ensued between United States and United Nations-based organisations. One contender was the American National Standards Institute (ANSI), a non-profit organisation that represented both users and producers of computer technologies. The other contender consisted of representatives of (mainly state-owned) telecommunication companies, organised at Geneva through the International Telecommunication Union and its sub-committee CCITT (the Consultative Committee on International Telegraphy and Telephony). The CCITT shared authority over networking standards with the International Organisation for Standardisation (ISO) (Abbate 1999).

The standards debate revealed conflicting visions of how computer networks were to be used and who should control their planning and operation. The phone companies wanted a centralised Internet where they could control network performance. It would also help them in preserving their monopoly on telecommunications by barring private operators from connecting to the public networks. One such standard was the X-25 communication standard that was adopted by the CCITT.

The rival protocol, TCP/IP – that is now the dominant communication standard on the Internet – was favoured by computer owners, on the other hand. They did not want proprietary standards, but wanted to choose freely who they bought services from, and at what level and price. Not least, they wanted the possibility to build their own, private networks (Ibid).

In summary, two distinct views on the future development of the Internet emerged during the 1970s, and continue to be the centre of the debate 30 years later:

1. A centralised Internet that controls network performance
2. A decentralised Internet with open standards

The economic layer

An identifier space, such as a domain name, is a finite resource. Groups of IP numbers are assigned to network organisations. Because IP addresses are charges for, and are fixed due to the need of having technical standards that persist over time, the economic layer touches the policy layer, and policy decisions can have economic consequences.

Initially, IP numbers were liberally distributed to anyone who asked. A US university typically disposes over as many IP addresses as a mid-sized European country. When the IP numbering system ran out of new numbers in the late 1990s, many stakeholders began to question the right of certain early US Internet users to have entire blocks of IP addresses, whereas non-European actors had to fight for the sub-blocks of IP numbers.

The IP numbers are being expanded from 32 to 128 bits to be able to satisfy demand, but first-comers may be reluctant to change their existing 32-bit number batches. Among the original network users there is some resistance against leaving the original IP numbering system i.e.

130.225.126.134

and adopting the new IP numbering system (version 6), where an IP number may look like this

fe80:0000:0000:0000:0230:67ff:fe00:eb8a

The original IP numbering system is easier to use, and may therefore be viewed as a more valuable resource than the version 6 numbering system, that is more cumbersome for users to remember, but allows newcomers access to the necessary numbering space (Reynolds and Ginoza 2004).

The policy layer

Even the shorter IP number, such as 130.225.126.134, may be difficult to remember and not the most catchy marketing tool. Also, if the customer changes

network provider, the new company may have a different batch of numbers, and so the customer (in this example the University of Copenhagen) may have to change its host address.

Domain names were introduced to work parallel with IP numbers. To avoid having to connect to a long IP number, the user was given a domain name such as

<http://www.ku.dk>

which establishes a connection to the host with the IP number 130.225.126.134 .

Domain names are easier and constitute a scarce resource. A recent example of the perceived value of domain names is the sale in July 2003 of the domain name *men.com* , which was sold for USD 1.3 million. 40 similarly easy words were expected to carry a similar price as domain names (Jackson 2004).

The coordination of IP numbers and domain names are done in the Domain Name System (DNS). The top of the DNS hierarchy is the *Root* file, the single data file at the heart of the hierarchy, that controls the routing for most of the traffic on the Internet. The political implications of controlling the Root – and thereby the singular power of the Internet - will be addressed under the relevant sections throughout the paper.

According to Lawrence Lessig, cyberspace is constituted by code, software and hardware, that together make up the architectures that cyberspace is. These architectures are many; the values that they imbed - privacy, anonymity, access, control - are varied; “and hence a choice about these architectures is a choice about these values” (Lessig 1998).

Jon Postel was the person that, more than perhaps any other individual, influenced the beginning standardisation of the Internet. Anyone who needed a block of network numbers, contacted him to get an assignment (Postel 1981). Even though Postel was a network coordinator in what I will call the *technical layer* of assignment, his actions has a lasting effect in both the *economic* and *policy layers*.

The *de facto* standards submitted by Jon Postel were expressly addressed to “the Internet Community” by a founder who considered himself a trustee of the designated authority, with a duty to serve the community (Postel 1994). Even though, formally speaking, the standards were formulated as pure technical coordination, the normative justification was closer to the second vision of the future of the Internet, that of creating a decentralised Internet with open standards.

THE INTERNET INFRASTRUCTURE

The dream machine

Joseph C.R. Licklider was another early computer pioneer who helped make the global computer network a reality. His starting point was not technical, but human. He started his career at the Massachusetts Institute of Technology (MIT) as an experimental psychologist. He had a great interest in psychoacoustics, the study of how the human ear and brain convert air vibrations into the perception of sound. At MIT Licklider also worked on the Semi-Automatic Ground Environment (SAGE) Air Defence project as a human factors expert, which helped convince him of the great potential for human-computer interfaces. He described a dream machine, a computer assistant that could answer questions, perform simulation modelling, display results graphically, and extrapolate solutions for new situations from past experience (Licklider 1960).

His vision was of an intergalactic computer network that would help scientists share ideas and resources. In the 1960s, at a time with punched cards and paper tape, he formulated the vision of a time when computers would interact in real time with the human user. By performing numerous routine tasks on demand, computers could contribute to a person's ability to formulate new insights and decisions. There would be applications that could exchange messages and users would be able to create programmes and data themselves:

The collection of people, hardware and software – the multiaccess computer together with its local community of users – will become a node in a geographically distributed computer network (Licklider 1968).

The man-computer symbiosis would enable man to solve problems of enormous scope and importance. Digital computers connected through computer networks would enable people to communicate more effectively than they were able to face-to-face, and thus enable their organisations to achieve results that no organisation hitherto had achieved (Ibid).

ARPA

Licklater was only able to finance his work by joining the Advanced Research Projects Agency (ARPA), that had been formed in 1958 as a result of increased US military budgets for military and space research. The Information Processing Techniques Office (IPTO) became the centre for computer and network research, with the visionary Licklater as its first leader. After he left IPTO in 1965, ARPANET was

established, and gave researchers an opportunity to try out their ideas in practice (Abbate 1999).

A myth surrounding the history of the Internet has been that ARPANET was established by the Pentagon as part of a military plan to create a communication system that would survive a nuclear war by being organised as a node-system, where the second node would take over if the first one was cut off from the network. The idea seems to have originated in mainstream thought in a note by the science fiction writer Bruce Sterling in the *Magazine of Fantasy and Science Fiction* in early 1993. This idea has been challenged by the Internet historians Michael and Ronda Hauben (Hauben and Hauben 1995). According to Larry Roberts, a pioneer in computer networking, in a posting to to the Community Memory list:

there never was a word about nuclear survivability in the ARPANET plan, either internally, or in our submissions to Congress. I believe the concept came from a perceived relationship of the ARPANET project with Paul Baran's early work at Rand (Horvath 2000).

Jay Hauben, an editor of the *Computer Amateurist*, argues that the creation of ARPA in 1958 was as a counter to cold war dominance of funding which went to big weapons and to classified and secret research:

The mission of ARPA from its very inception was embodied in its name: support and guidance to the science community for doing forefront research which would be more advanced than other sectors in US society would undertake (Ibid).

In 1962, Paul Baran presented a report to the Rand Corporation on a node-based network system, designed to survive in a situation of crisis. He called it “warm potato routing” because it was based on the sending of digital packets that could take alternative routes to its destination. Such a net could be built with simple and cheap computers as switches (Baran 1962).

In 1968 the ARPANET project received a grant from the US government of USD 2.2 billion – more than that of the National Science Foundation - and asked to find operators for the network. Phone lines were rented from AT&T, and in 1969 it was decided to buy the switching computers (interface messaging processors) from Bolt, Beranek and Newman, a commercial company in Cambridge, Massachusetts. In 1971 a total of 15 networked machines across the United States were ready, and in 1972 the network was demonstrated for the first time. From a hotel in Washington, ARPANET was used to connect to computers across the United States and Paris, and was able to run software on the other machines on the network. For the first time, computers in

networks were able to communicate with each other using compatible terminals and networks (Rasmussen 2002). In August 1981, the number of Internet hosts was 213. In 1986, the number had increased to 5 089, and in October 1991 to 617 000 (Mueller 2002). In October 2005, the number of Internet hosts had reached 74, 4 million (Netcraft 2005).

Interconnectivity

One of the initial problems was connectivity between computers. A common language (communication protocol) to connect different hosts on a network did not exist. ARPANET created an environment where a number of pioneering individuals met. At the University of California/Los Angeles (UCLA) ARPA had supported a computer laboratory led by Leonard Kleinrock. His graduate students Vinton Cerf, Steve Crocker and Jon Postel were responsible for implementing the communication protocols. A basic architecture was produced by Kahn and Cerf in 1973. Between 1975 and 1977 various versions of the proposed protocols were implemented and tested at Bolt, Beranek and Newman; University College London, and at Stanford.

The protocol did not work very well until 1978, when Cerf, Postel and Danny Cohen split the protocol into two parts; a transport control protocol would organise communication between hosts. And an Internet protocol would be used to move packets between computers. In 1981, TCP/IP was implemented, and a 32-bit address system name space had been created (Postel 1981; Mueller 2002).

At the same time, blocks of network numbers were assigned to different organisations that would connect their computer networks to each other. These recipients were ARPA, local universities (Stanford and MIT) and a few commercial carriers (TymNet, Comsat and DECNet). Some non-American entities were assigned numbers, too: The Post Office in the UK, University College London, the Cyclades network in France, and the Royal Signals and Radars Unit in the UK. The document allocating the number blocks was authored by Jon Postel. Anyone who needed a block of network numbers, contacted him to get an assignment (Postel 1981).

In 1982 the ARPANET consisted of 250 hosts and 25 networks. MIT's Dave Clark warned in July 1982 that "any implementation undertaken now should be based on the assumption of a much larger Internet" (Clark 1982). Until then, all traffic routing between the networks was taking place via a text file called *hosts.txt*, placed on a computer in Menlo Park, California. A discussion was already going on in the ARPA-Internet community on some system of a "hierarchical name-space partitioning" system.

The DNS (Domain Name System)

Dave Clark thought it would be impracticable for all computers in the future world network to retain and update a file of all other computers in the world:

A problem which occasionally arises in the ARPANET today is that the information in a local host table is out of date, because a host has moved, and a revision of the host table has not yet been installed from the NIC (Ibid).

He proposed a scheme to let every network be responsible for maintaining its own names and provide a “name server” that would translate between the names and addresses of the network. The specifications were published a short time after (Mockapetris 1983a; Mockapetris 1983b). The solution was to create the Domain Name Server System (DNS), where the first top-level domain was going to be *.arpa*. For example, if an organisation was assigned the IP address *3.4.5.6*, it would also register the domain *6.5.4.3.in-addr.arpa* (reversed because the DNS hierarchy goes from right to left). The process of *inverse resolution* ensures that many servers and mail handlers will check to see that a connection is coming from an address that resolves properly. If not, the connection will be rejected.

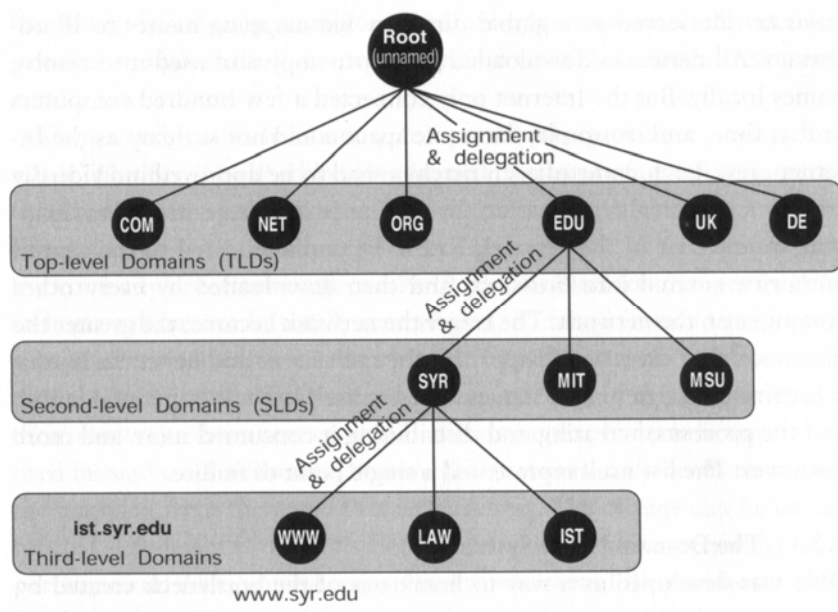


Illustration no. 3: A hierarchical name space, showing the importance of the legacy root zone (from Mueller, p. 42)

What would the other top-level domain names be? “As soon as it is practical,” writes Jon Postel, “a second domain ‘DDN’ will be introduced” (Postel 1983).

Second-level domain names would be for major organisations. Third-level domains would administered by those organisations. A fourth level would be subdivisions.

The general guideline for a second level domain is that it have over 50 hosts. This is a very soft 'requirement'. It makes sense that any major organization, such as a university or corporation, be allowed as a second level domain -- even if it has just a few hosts (Postel and Reynolds 1984).

Postel had proposed six initial top-level domains: *.arpa* , *.ddn.* , *.gov* , *.edu* , *.cor.* and *.pub* . The discussion was continued on the *Namedroppers* discussion list. One of the participants, Mark Horton, wrote on 2 November 1985:

I have yet to run into ANYONE outside the United States who is interested in the EDU/COM/GOV domains. Without exception, they all want the top-level domains to be based on geography and international boundaries (Mueller 2002).

The British didn't want to use the proposed domain names, but wanted *.uk* instead. The assignment of *.uk* to Andrew McDowell of University College London became the first country assignment. Postel proposed that a newly issued list of country names from the International Standardization Organization, ISO-3166, be used as a basis for assigning top-level domains. It was already too late to change *.uk* to *.gb* , but all the other country codes were adopted (Ibid).

By now it was *de facto* established that the IP numbers of all existing top-level host computers would reside on 13 Root servers. In practice, the Root of the Internet consists of one single file, maintained at Network Solutions in Herndon, Virginia. From there, it is distributed to 12 secondary servers. Changes can only be made by IANA (the Internet Assigned Numbers Authority). If changes are made – typically once or twice a week - the DNS file would be quickly duplicated so that all computers of the DNS would have the most recent file.

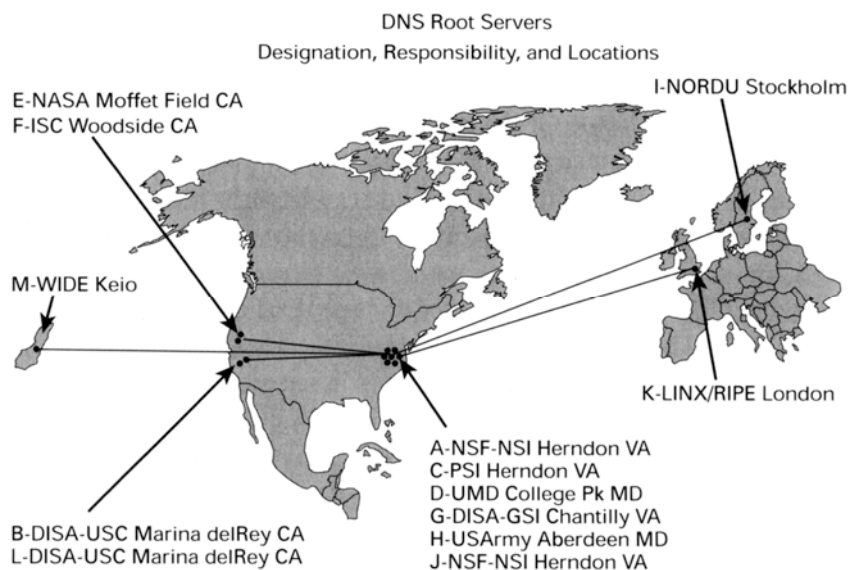


Illustration no. 4: The location of the 13 root servers, where the main file is in Herndon, Virginia (from Mueller, p. 47)

The name servers of all (local) networks contain the second-level domain names of all (local) host computers. This means, in practice, that many networks could make a direct connection to a host, once the initial connection had been made, and not necessarily via the Root. So if all Root computers were wiped out at once, the Internet would probably continue to work, but it would be impossible to add new host computers to it.

THE INTERNET SYSTEM OF GOVERNANCE – AND THE REVOLT

As long as the Internet was run by a group of pioneers and enthusiasts – and financed by research institutions – the issue of property rights did not matter very much. With the increasing commercial interest in the Internet, a number of conflicts arose during the last part of the 1990s. Some of the most famous *cybersquatters* were Alex and Birgitta Ewaldson who registered 243 variations of Telia (the largest Swedish telecom company), 122 names related to Dell, and reportedly sold thousands of other company names for thousands of dollars (Wood 2002).

The original domain names proposed by Jon Postel were allocated on a first come, first serve basis and operated by Network Solutions Inc, a private company operating under contract with the National Science Foundation between 1995 and 1998. Customers paid a nominal price for registering a domain name in the *.com* ,

.org. or .net domains. In accordance with the spirit of the Internet pioneers, it was up to the registrant to decide what top-level domain he wanted to use.

Synthetic and pragmatic institutions

Even though it has been established with some certainty that the Internet was not created primarily to withstand a nuclear attack, a few remarks may be in order before we enter the discussion on who has a right to rule the Internet. It seems clear that if the United States government had not financed the activities of people such as Licklater, Baran and Postel, the Internet that emerged would have looked different. The National Science Foundation gave these eminent individuals an opportunity to work on projects that, at the time, were seen as utopian and perhaps unrealistic.

We don't know what their normative positions were when working on the different projects on behalf of US government agencies. But we are able to judge the result of the process, and it would seem clear that the normative justification was closer to the second vision of the future of the Internet; that of creating a decentralised Internet with open standards.

Hayek sees society as the result of evolution - a spontaneous order consisting of several *pragmatic* institutions. They emerge over time as a result of individual action - they are not the result of grand planning. The other kind of institution is *synthetic*, being the result of what Hayek sees as constructivism and attempts at central planning (Hayek 1981). The resulting development is to some degree dualistic. Planned institutions have unintended consequences and result in new pragmatic institutions. He states that: "Societies form but states are made" (Ibid, p. 140).

If we use the word *anarchy* to describe the Internet's system of governance, we use it in the correct meaning of the Greek noun **ἀναρχία**: *without ruler*, i.e. the absence of a centralised authority, or society without a state. The Internet is not chaos, but – after leaving its military origins – may be viewed as a form of *spontaneous*, emerging order, rather than a *designed* order (Sciabarra 1995). The Internet emerged as an efficient system of governance - with clear standards, norms and values. At the same time, it is a system without a centralised state authority.

Because of the spontaneous nature of the Internet community – and depending on who was the local administrator – the national policies of domain allocation varied greatly between different domain spaces. Some countries, such as Denmark, set its domain name regime free in 1999 with a practice similar too that of the US domain names. In Sweden, only legal entities could register domain names as late as 2003, when Swedish rules followed those of the US and Denmark. The Norwegian domain registry, NORID, placed themselves somewhere in the middle, based on the

experience that the US and Danish practice led to a high level of piracy, whereas a high level of regulation led to too little freedom for net users to choose a suitable and easy-to-use domain name:

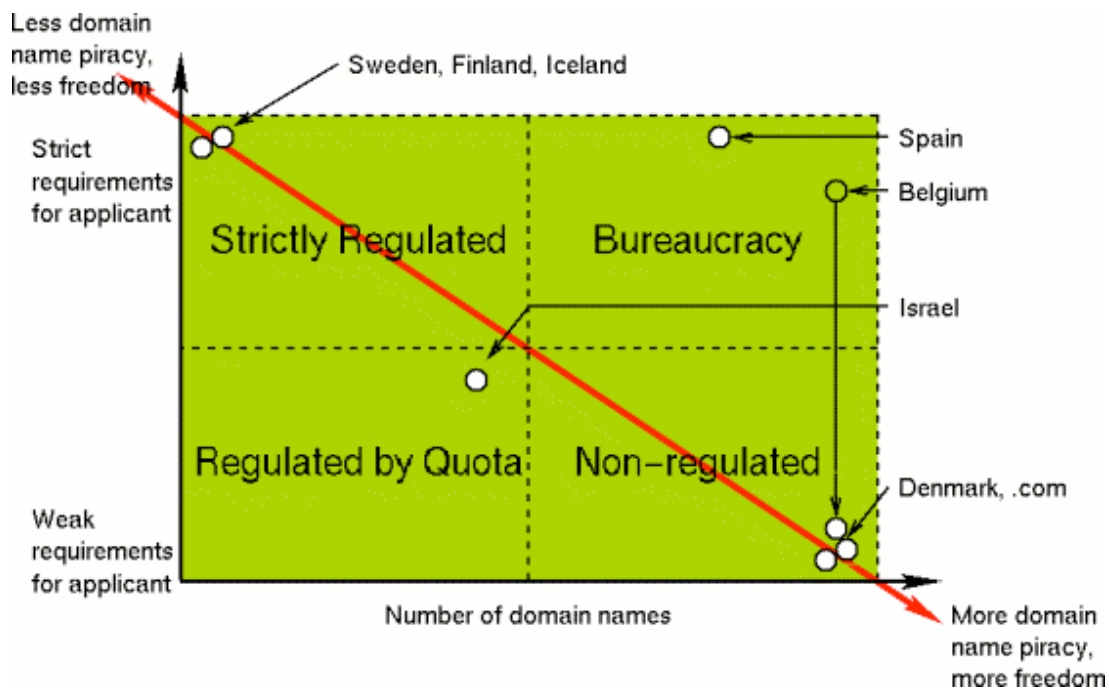


Illustration no. 5: National domain policies, ranging from a laissez-faire to a restricted regulatory regime (from <http://www.norid.no/bakgrunn/navnepolitikmodell.en.html> accessed 6 Nov 2003).

Prior to the Swedish decision to liberalise, it was common practice for Swedish companies to choose names in the US top-level domains, or in the name space of the pacific island of Niue, *.nu* (which means NOW in Swedish). The *.nu* domain space had been administered by American business interests since 1997, when it started accepting any domain name that a member of the public wanted to register. The island had 2 100 inhabitants in 2002, but 140 000 domain names, of which 61 per cent were said to have been registered by Swedish customers (nunames.nu 2002).

In one of his last major *request for comment* memoes before his death in 1998, Jon Postel established a committee called IANA:

The Internet Assigned Numbers Authority (IANA) is responsible for the overall coordination and management of the Domain Name System (DNS), and especially the delegation of portions of the name space called top-level domains (Postel 1994).

IANA would appoint a manager for each domain space:

The major concern in selecting a designated manager for a domain is that it be able to carry out the necessary responsibilities, and have the ability to do a equitable, just, honest, and competent job (Ibid).

There must be an administrative and technical contact for each country top-level domain, they must be connected to the Internet themselves, and be able to provide nameservers according to the established standards. Apart from this, it was not clear from Postel's document how these managers would be appointed, or how conflicts would be solved:

These designated authorities are trustees for the delegated domain, and have a duty to serve the community.

The designated manager is the trustee of the top-level domain for both the nation, in the case of a country code, and the global Internet community.

Concerns about "rights" and "ownership" of domains are inappropriate. It is appropriate to be concerned about "responsibilities" and "service" to the community (Ibid).

On names and trademarks, Postel wrote:

In case of a dispute between domain name registrants as to the rights to a particular name, the registration authority shall have no role or responsibility other than to provide the contact information to both parties.

The registration of a domain name does not have any Trademark status. It is up to the requestor to be sure he is not violating anyone else's Trademark (Ibid).

And on country codes:

The IANA is not in the business of deciding what is and what is not a country.

The selection of the ISO 3166 list as a basis for country code top-level domain names was made with the knowledge that ISO has a procedure for determining which entities should be and should not be on that list (Ibid).

The Internet society

It may have been wishful thinking when Postel stated that he need not be concerned with questions of rights and ownership. As early as 1991, the Internet founders centred around ARPA wanted to create a legal entity for their efforts. They were worried that they might be personally liable for decisions made on behalf of the Internet community. The Internet was now being opened for commercial activities,

and the question of revenue became important. In January 1992 they founded a private, nonprofit organisation called the Internet Society, that would insure members that were engaged in the Internet Engineering Steering Group (IESG), later named the Internet Engineering Task Force (IETF). This was a network of designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet.

The first board of trustees consisted of Bob Kahn and Vint Cerf, two Internet pioneers, Mike Roberts of Educom, Charles Browstein of the National Science Foundation, plus five other persons, including three from outside the United States. In June 1992 they prepared a draft charter for an Internet Architecture Board (IAB), a move that was designed to formalise the running of the Internet, but clearly outside the control of the US government (Mueller 2002).

The members of the IAB were not convinced that they worked under the auspices of the Internet Society, and differences of opinion emerged between the original founders and new members of the community. Only six months after it was founded, a revolt took place at IETF. The IAB wanted to impose a new interdomain routing method, made necessary by increased commercial traffic on the Internet. The IETF members felt that the standard was not solid enough and that more development was needed. The conflict went on until 1996, when the two groups were reconciled again. A number of civilian and military agencies in effect controlled *the Root* – the ultimate file of the Internet domain hierarchy. They all converged around one man, Jonathan Postel (Ibid).

In November 1995, Lawrence Landweber, the president of the Internet Society, IAB chairman Brian Carpenter, Jon Postel and Nicholas Trio of IBM wrote a memo proposing that

the Internet Society should take a formal role in the oversight and licensing of competitive registries for the international Internet name space, in support of the IANA and with the assistance of the IAB (Landweber, Carpenter et al. 1995).

Fees from registering domain names would finance the Internet Society, according to the draft:

Fee structures will be set to generate only sufficient funds to cover DNS-related activities of IANA, IAB, ISOC and will not fund programs or activities not connected with DNS name space management. Examples of anticipated expense categories include support staff, liability insurance for the IANA, IAB, and ISOC, overhead items such as space and computing support, and travel. It is an open issue whether support of Root nameservers would be included

(...) Indeed, the ISOC is prepared to provide an independent, neutral home for coordination of essential central elements of Internet infrastructure. These include the Root domain and selected top-level domains of the domain name system. (Ibid).

In this document, the Internet Society seems to claim ownership of the Root, including the generic top-level-domain names. And as trustees of the Internet, they propose to develop the Internet to serve commercial interests by establishing new top-level domains and ensuring the technical standards of the net.

The world wide web

Between July 1994 and February 1996, the number of second-level domain registrations (.com/ .edu/ .org/ .net/ .gov) had increased from 16 114 to 263 760, according to Network Solutions statistics. In January 2005, there were 46.4 million registrations in these second-level domains (Zooknik 2005). However, information on the Internet was still accessible only to experts that were computer-literate. That was soon to change.

In 1989 Tim Berners-Lee had proposed a graphic hypertext system that would enable users to access complex information by using hypertext in a node system. If this system were to succeed, the user would be able to access complex information from various information sources and across different computer platforms. This illustration shows how Berner-Lee's own memo could have been presented had it been formatted in a hyperlink format (Berners-Lee 1989):

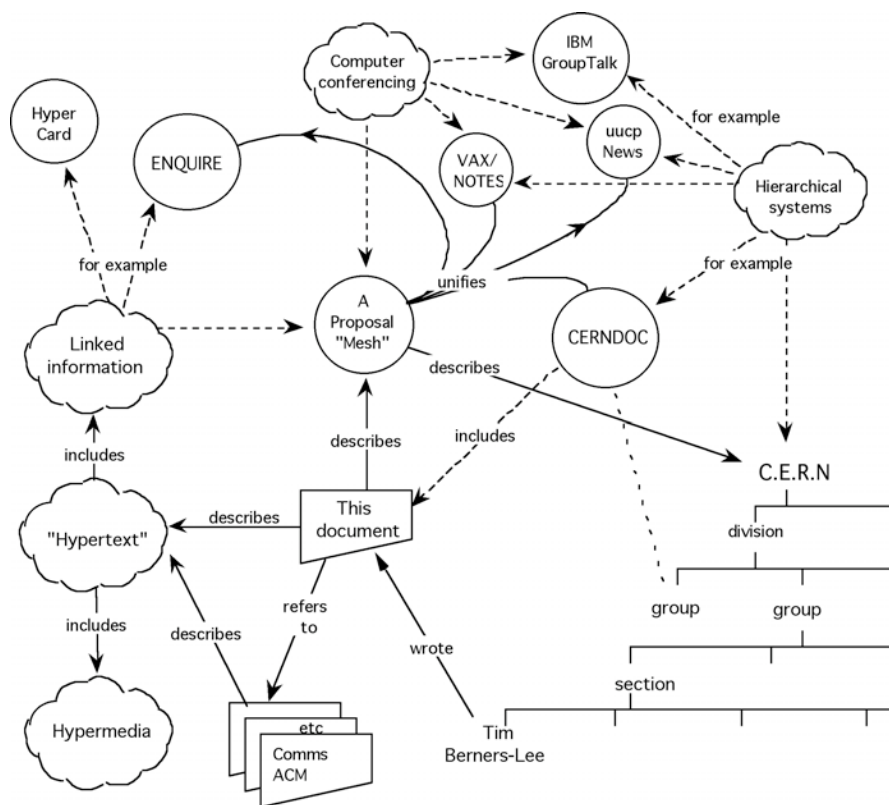


Illustration no. 6: A hypertext proposal, later known as the world-wide web (Berners-Lee 1989)

Until now there had been fixed, hierarchical systems which were static in nature. What Berners-Lee envisaged, was a dynamic *pool of information* that would grow with the organisation. By creating *circles of information*, it would be easier to link information together. Ted Nelson had defined hypertext as “human-readable information linked together in an unconstrained way” (Nelson 1967). The aim of such a project:

We should work toward a universal linked information system, in which generality and portability are more important than fancy graphics techniques and complex extra facilities (Berners-Lee 1989).

Even though a complicated structure of protocols and formats would be needed for the information to be exchanged between servers, the user would not have to worry about any of the technology. To him, all information would be served in a browser and in a graphical “grid” format:

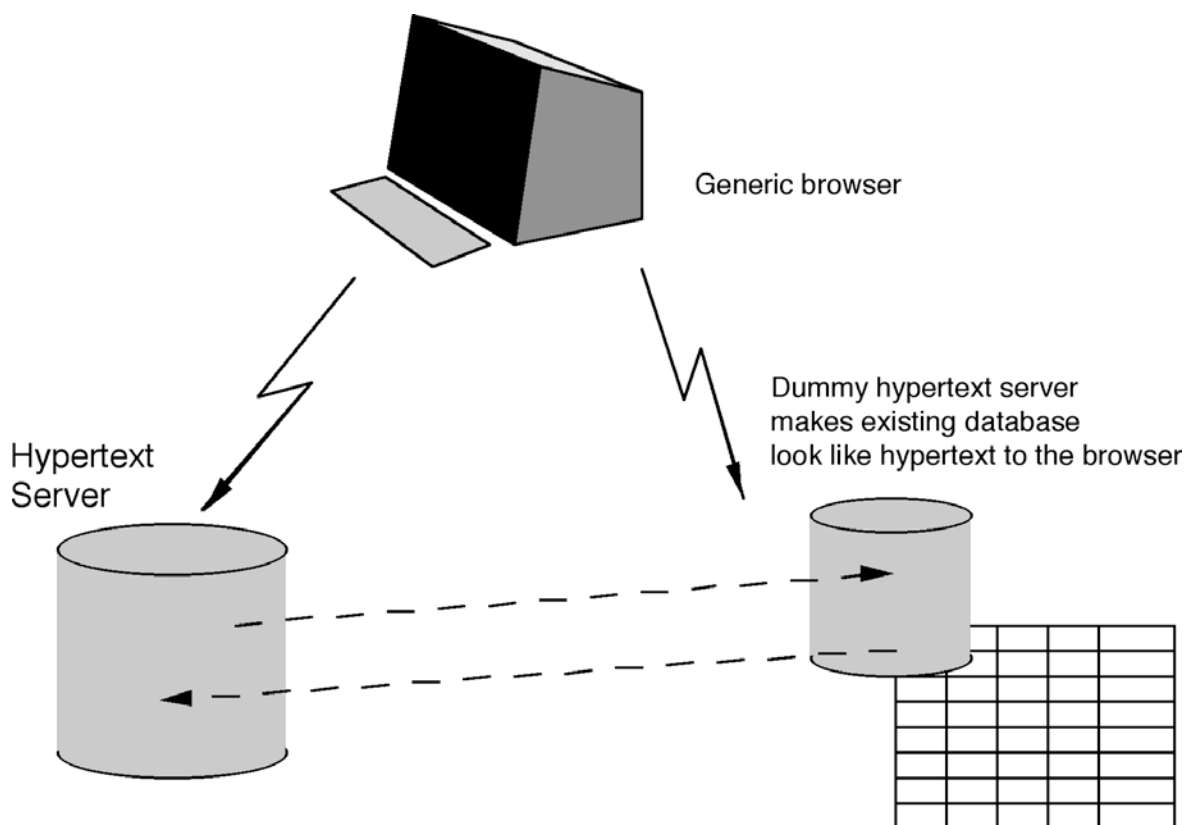


Illustration no. 7: Accessing information from servers in different physical locations via a grid or network browser (Berners-Lee 1989)

The physicists at CERN had written the first software code for web servers and a browser that would work across computer platforms. The emergence of a graphical user interface made it possible for the user to click his way through documents or other objects stored on worldwide computers. The release of the Mosaic web browser by the National Center for Supercomputer Applications in the US made web surfing a popular activity.

In October 1994, Tim Berners-Lee founded the World Wide Web Consortium (W3C) at the Massachusetts Institute of Technology in collaboration with CERN. Between 1994 and 2003, more than 50 technical specifications were developed to allow for a smooth running of the world-wide web. Netscape was founded in 1994 and 20 million users were using the world wide web (Mueller 2002).

THE STATE OF NATURE AND THE SOCIAL CONTRACT

There seems to be a missing link between Jon Postel's 1981 *request for comment* memo, addressed to the Internet Community, and his last ones. In 1994, ownership of the Root file already seems to have passed *de facto* to an entity established by Postel: the Internet Assigned Numbers Authority (IANA). Postel's sweeping assertion that concerns about "rights" and "ownership" of domains are inappropriate, seems premature.

Even though "responsibilities" and "service to the community" may be criteria by which to judge the process, it would seem highly relevant to discuss the normative justification for the development of Internet governance until 1994. If nothing else, Postel's hope that IANA should be able to keep out of a dispute between domain name registrants as to the rights to a particular name (other than to provide the contact information to both parties) has proved futile. Property rights are at the centre of the discussion of Internet governance.

When the group of Internet pioneers established the Internet Society in 1991, it was presumably because they feared that civil action could be taken as soon as commercial interests were at stake. The Internet began to play an economic and political role, and it was far from clear that they – as individuals – could be kept free from contract responsibility. Hence the need to establish the Internet Society as an insurance against civil court action.

Would it be possible to argue that - via the corporations of the Internet Society and IANA - the Internet emerged from a state of nature to a civil society, albeit with very few stakeholders as part of the social contract?

Natural law played a vital historical role in the emergence of the European states system. Similarly, contract theory and the emergence of civil society is a central concept in all three of the traditions introduced by Martin Wight. Let us consider the conditions under which it may be possible to leave the state of nature and enter into a social contract as an individual, a national political community, or as an international society of states.

Half a millennium before Hobbes knew that there was an answer to the question 'What is international society?' international theorists acknowledged that in the state of nature men are still bound by the law of nature. Augustine says that even in the 'state of innocence' men would have sought one another's company and would have tended together the final goal of human existence (Augustine 1950). The virtue that characterises the citizen of the city is justice. Quoting Cicero's *De Republica* favourably, Augustine says there "never was a Roman republic; for he briefly defines a republic as the weal of the people". Civil society is "an assemblage (of men)

associated by a common acknowledgement of right and by a community of interests.” Without such justice there is no legitimate republic (Ibid).

In his treatise *On Free Will*, Augustine distinguishes between the eternal law, which is the supreme norm of justice, and the temporal (or human) law, which adapts the common principles of the eternal law to the changing needs of particular societies (Fortin 1987). Even in the 'state of innocence' - and in the absence of rationality - there are norms and values that govern the temporal law, based on natural law.

Law and the creation of society

According to Richard Tuck, Hobbes' thinking is the culmination of a mediaeval natural rights tradition articulated mainly by Grotius (Tuck 1979). Martin Wight is cited as stating that his own “prejudices are rationalist” (Dunne 1998). Since a great part of Wight's and Bull's conversation between the three classical traditions is also a discussion of idealism versus the natural rights tradition, it is useful to explore Grotius' natural rights thinking in detail.

Hugo Grotius says that man is by nature a rational and social animal. Like Thomas Aquinas, he builds on the teachings of Aristotle, that man's nature enables him to flourish and reach his potential, *telos*. There are two kinds of law (or right): *natural* and *volitional*. The first kind is the *jus naturale*, the natural law. The law of nature depends on God's will, but in Prolegomena he states that the law of nature would be valid even if God did not exist. Volitional law is divided into human and divine law. There are three kinds of human law:

1. The commands of a father or master
2. Municipal or civil law (*jus civile*)
3. The law of nations (*jus gentium*)

Whereas the law of nature is unchangeable, and based on the rational and social nature of man, the third kind of law is changeable. The mother of municipal law is that obligation which arises from consent. Thus, the standard of justice which applies to individuals also applies to a nation or a ruler (Grotius 1925).

But if there is law – and the existence of law itself creates a society – why is it necessary to leave the state of nature? What is the distinction between the state of nature and man's social condition? This is not just a verbal problem, according to Martin Wight:

The answer was, of course, that there is no such absolute distinction between the state of nature and the social condition. The latter is indeed inaugurated by the

social contract, but this does not mean that the pre-contractual condition, the state of nature, is non-social (Wight 1991).

Grotius solves the problem through his doctrine of sociability. In the state of nature, man has the capacity for being social, if not for society. There is intercourse and a condition of peace, but unstable and insecure, liable to collapse into war (Ibid).

John Locke uses exactly the same argument against Thomas Hobbes. Hobbes not only says that international society is in the state of nature, but that it equals the state of war. Locke refutes this. Man is perfectly justified to remain in the state of nature should he not decide to establish a social contract. The state of nature is *not* a state of war. All that the two conditions have in common is the absence of a political superior (Wight 1991; Locke 1993).

Rational and social Internet founders

There seems little doubt that the founding fathers of the Internet were both social and rational beings, and that the purpose of their rule was the common weal of the netizens. There was an assemblage (of men) associated by a common acknowledgement of right and by a community of interests. According to Augustin, justice is decided by temporal law, but based on underlying norms and values, ultimately based on natural law.

The initial developments of Internet governance would seem to be of the first kind described by Grotius, in the form of the commands of a master and researcher at a US research institution. By incorporating the Internet Society and IANA as corporations under California law, Internet rule took a step into the world of municipal or civil law (*jus civile*). Towards the end of 1996, we shall see that Internet rule enters the realm of the law of nations (*jus gentium*), as an international struggle for power over the Internet Root file ensues.

Clearly, there exists order in the initial Internet state of nature. Protocols, standards and interchange takes place orderly and peacefully. This is not the state of war predicted by Thomas Hobbes, but rather the state of nature described by Locke. The netizens are perfectly justified to remain in the state of nature should they not decide to establish a social contract involving all netizens. Internet governance in the state of nature is not illegitimate, provided that it is ruled by the virtue of justice and rationality.

Implicit and explicit in Locke's writings is that there can be great advantages by leaving the state of nature and entering into a social contract. Greater security and protection of property rights is perhaps the main advantage of such a social contract

(Locke 1993). It adds legitimacy to the government and makes the citizen an active party and stakeholder in civil society.

The state of nature in the three paradigms

Before discussing the attempt to create a social contract for netizens on the Internet, let us look at political rights in the state of nature in view of the three paradigms as defined by Martin Wight as *realism*, *rationalism* and *revolutionism* (Wight 1991).

To the *realist*, political rights in relation to Internet governance is primarily possessed by each sovereign state, internally as well as externally. The actors in Internet governance, if we apply Waltz' images, are then individuals, but acting on behalf of the US government, directly or indirectly through the state-financed research institutions. The nature of domestic US society is such that the US government, at least since World War I, plays a major role in science projects by financing them and using them to pursue the goals of the state: to extent and maintain the power of the US government domestically and internationally.

By making the Internet available across borders, US scientists get access to information from scientists around the world, and it becomes easier to promote US technical standards and products internationally. The main motivation to the realist is national self-interest and securing the role and leadership of the United States in an anarchic world (Waltz 2001).

Moral and legal concerns can only be the goals of the state. Thus each state that is connected to the Internet decides its own procedure for allocating and administering IP number batches and country domain names. As long as they conform to international standards – created mainly in the US – the US government does not interfere with the internal practice of other states.

To the *rationalist*, rights on the Internet ultimately belong to the netizens, but in their capacity as members of the science community and each state participating in trans-national communication activities. The international community of scientists share some common rules which enable nodes and servers in different countries to interconnect through the Internet.

The member states have legitimate, sometimes conflicting interests. They attempt to regulate possible conflicts through international law and negotiation, for example by sitting on US regulatory committees, such as ICANN, and by taking part in deliberations under the auspices of the International Telecommunications Union (ITU). Since international policy is changing over time, the development of the Internet is explicitly historical and evolutionary. The emergence of new information

and communication technologies is increasing the amount of trans-national communication between non-state actors, but does not alter the nature of the international society of states.

To the *revolutionary*, or the *universalist*, the human being always precedes institutions. Therefore rights do exist in the Internet community, and they are not necessarily vested in the nation state. Anyway, the sovereign state must always answer to a higher authority: mankind or *universitas*. In the same way as Kant considered sovereignty to be a hindrance for the Renaissance, the existing system of sovereignty could therefore be a hindrance for the ultimate values of mankind (Wight 1987). The universalist may see the Internet as a way of escaping the national state, or as a way of remaining true to the US revolutionary ideal. On the Internet, he may escape the gambling laws of California, Chinese sensorship – or the US tax code - by keeping his means in an offshore jurisdiction. He can take part in closed communities on the Internet or encrypt his communication to avoid the US intelligence services.

The universalist may have higher goals, too. Belonging to the third classical paradigm, his values can be recognised in the Reformation, the French Revolution, the Communist revolution, the Islamic revolution and the Green revolution. All these causes can be promoted on the Internet, and sometimes independent of the national governments.

The Internet in a state of international anarchy

I have until now discussed political rights for netizens on the Internet in the state of nature in view of the three paradigms. Is it possible, also, to look at the Internet as an actor in the international society of states?

The *rationalists* in international political theory argue with Locke that, in the relationship between states, it is custom that dominates, rather than the war predicted by Hobbes (Hobbes 1968). There are rules and norms that regulate international relations and that may be said to form a *societas*⁷ of states. The *realist*, on his part, is not limited by any contract. He is unlimited, and the state is allowed to act as if no contract exists in international society. To the *rationalist*, the state of nature is a quasi-social, institutionally deficient condition, and there *does* exist a society of states, a contract of a Lockean kind. Natural rights are limited to the individuals that constitute the ultimate units of the state.

⁷ *Socius* = ally, partner
societas = partnership

It is John Locke who has given right-based theory its most solid apparatus in the defence of individual rights. Especially influential is his definition of objective natural right, substantial natural right and his rationale for acquiring, keeping and parting with property in *Two Treatises of Government* (Locke 1993). In his second treatise – first published in 1689 – Locke refutes the claim by Robert Filmer that the rulers derive their right from God, via Adam and his successors:

And truly, I should have taken Sir Robert Filmer's *Patriarcha* as any other treatise, which would persuade all men, that they are slaves (...) (Ibid, p 6)

On the contrary, Locke claims that

every man has a property in his own person. This nobody has any right to but himself. The labour of his body, and the work of his hands, we may say, are properly his (Ibid, p 128).

The Internet may still be in a state of nature. To the *realist*, no international rules exist on Internet governance. It is therefore up to the nation state to set the rules, as it is being done by the United States government. To the *rationalist*, norms and rules exist for the Internet and, to some extent, the treatment of the Internet by states. To the *revolutionist*, the fall of communism - and a number of other dictatorships in the 1990s - led to an optimism among netizens in the revolutionary spirit of John Locke and Thomas Jefferson. John Perry Barlow's declaration of independence in Cyberspace bears the clear mark of liberalism's classical writers:

We have no elected government, nor are we likely to have one, so I address you with no greater authority than that with which liberty itself always speaks. I declare the global social space we are building to be naturally independent of the tyrannies you seek to impose on us (Barlow 1996).

There is a desire in Barlow's writing to remain in Locke's 'natural state' and resist government intervention by "erecting guard posts at the frontiers of Cyberspace." In this radical libertarian view of cyberspace, the individual reigns sovereign, but is of course allowed – perhaps expected – to engage in "our culture, our ethics, or the unwritten codes that already provide our society more order than could be obtained by any of your impositions" (Ibid). Its chief purpose is to enable the netizen to act based on his individual preferences.

It is apt that the URL referring to Barlow's declaration above should go to the Electronic Frontier Foundation. In cyberspace the new frontier never ends, and it is

always possible to “go West” to acquire new land. The Net may be expanded indefinitely, since there is no limit on new territory.

Trying to establish a social contract

Towards the end of 1996, frustration was mounting at the way the Internet was governed. Especially the *de facto* monopoly of Network Solutions in the *.com*, *.org* and *.net* domains stirred dissatisfaction. According to Milton L. Mueller, 14 months from August 1996 to October 1997 was a decisive period in the history of the Internet:

The Root was literally “in play” for a span of about 14 months, a period that witnessed a power struggle over another Internet Society-led plan to privatize the DNS Root, a hijacking of the InterNIC registration site in July 1997, an antitrust suit against Network Solutions (NSI), and a redirection of the Root servers in January 1998 by Postel himself (Mueller 2002).

In the context of the Internet, hijacking the Root amounts to a revolutionary incident. According to Chalmers Johnson, revolutionary situations are likely to occur when the political system no longer is able to respond to the pressures of society. Leaders become swamped with demands and unrealistic expectations. Legitimacy is lost, and *power deflation* follows (Johnson 1966). In such a situation, élites often respond uncompromisingly in a hope to retain power. They are then forced to introduce limited reforms, which are seen as too little, too late. The population’s confidence increases, and revolutionary acts follow (Ibid).

In October 1996 the Internet Society (ISOC) decided to take action to prevent that the control of the Root was taken away from it. An international coalition was gathering to take the Internet into a global governance system, named the International Ad Hoc Committee (IAHC). In addition to two persons from IANA and one person from the National Science Foundation, the other members were from the International Telecommunications Union, the International Trademark Association, Keio University in Japan, Telstra (the Australian telecoms operator), IBM Israel, and the World Intellectual Property Association. Two other members, including the chairman, were appointed by ISOC. Notable absentees on the committee were representatives of the existing (or would-be) domain registries or any Internet Service Provider.

The final report stated that “the Internet top-level domain (TLD) name space is a public resource and is subject to the public trust” (IAHC 1997). A memorandum of understanding (MoU) would form the basis of a council of registrars (CORE) to be administered from the International Telecommunications Union in Geneva, a part of

the United Nations system. The preable of the MoU states that the proposal is made in the name of “the Internet Community” (gTLD-MoU 1997).

In practice, it is a carefully drafted compromise limiting the number of new top-level domains to seven and the number of potential registrars to 28. It makes large concessions to trademark holders, since protecting trademarks would be easier with few top-level domain names. It proposes that no domain name may be used until after a 60-day day grace period, during which time they may be challenged by trademark holders through the World Intellectual Property Organization (WIPO).

The Secretary-General of the ITU, Pekka Tarjanne, was delighted at the proposal and said:

I see a new paradigm emerging, which I will call ‘voluntary multilateralism’. This process consists of identifying communities of interest which can come together on a voluntary basis to solve problems. Sometimes those communities will form around organizations such as the ITU, the WTO or the OECD. At other times, they will form around a special purpose group such as the IAHC (ITU 1997; Tarjanne 1997)

Dr Tarjanne took issue with the regime of Internet governance existing at the time. His main criticism of the current system was that it

- Was too dependent on the goodwill of a small group of people who were doing the job largely by historical accident, because they were in the right place at the right time;
- The most popular gTLDs were handled by an organisation which holds monopoly over the registration and award of those domain names;
- The current system was dominated by actors in just one country, the United States to the exclusion of others;
- It did not give adequate attention to the protection of trademarks and other intellectual property;
- It lacked formal structure and legitimization (Tarjanne 1997).

On 1 March 1997, the Memorandum of Understanding was signed in Geneva by Jonathan Postel, chairman of IANA, and Don Heath, chairman of the Internet Society. An official signing ceremony was organised in Geneva, in the words of Milton L. Mueller “to assume all of the trappings of an international treaty agreement. (...) Yet the Internet Society and IANA still had no more formal legal authority over the Root than they had in mid-1996 (Mueller 2002)

In other parts of the Internet community, the ITU proposal was considered too little, too late. And just another attempt at introducing restrictive practices at a time when serious liberalisation was required to cope with the increasing lack of domain names. Paul Vixie, maintainer of the BIND software that was used by most domain name servers in 1997, told the main mailing list of the Internet Engineering Task Force that “if IANA’s proposal (draft-postel) stagnates past January, 15, 1997, without obvious progress and actual registries being licensed or in the process of being licensed, I will declare the cause lost.” He threatened to include alternative Root servers in the “Root.cache” file that he distributed with BIND, effectively creating an alternative Internet (Ibid).

The National Science Foundation, the institution that had granted Network Solutions the right to register domain names, declared in April 1997 that regulation and taxation of Internet addresses was not an appropriate function for the agency. Because of the various controversies surrounding the Internet, they pointed to the gTLD-MoU initiative and other ongoing deliberations. In March 1997, president Clinton’s e-commerce adviser, Ira Magaziner, formed an Interagency Working Group with representatives of various US government agencies. When the ITU “signing ceremony” was planned to take place on 1 May, the working group had just met for five weeks. In a telegramme to the US mission in Geneva, the Secretary of State, Madeleine Albright, challenged the ITU’s authority to call a full meeting of ITU member states without the agreement of national governments. It was announced to the US press that the White House would *not* support the Geneva initiative (Ibid).

US Government intervention

Neither the Internet Society and its related organisations, nor the ITU or and its partners, were included in the plans of the US Department of Commerce in its 1998 white paper. It stated that “... the Internet is rapidly becoming an international medium for commerce, education and communication (...) (DoC 1998).

According to the white paper, the pressure for change was caused by several factors:

- The absence of competition in domain name registration.
- Conflicts between trademark holders and domain name holders were becoming more common. Mechanisms for resolving these conflicts were expensive and cumbersome.

- Many commercial interests, staking their future on the successful growth of the Internet, were calling for a more formal and robust management structure.
- An increasing percentage of Internet users resided outside of the US, and those stakeholders wanted to participate in Internet coordination.
- As Internet names increasingly had commercial value, the decision to add new top-level domains could not be made on an ad hoc basis by entities or individuals that are not formally accountable to the Internet community.
- As the Internet became commercial, it became less appropriate for US research agencies to direct and fund these functions.

In the formulation of the white paper,

the US Government is prepared to recognize, by entering into agreement with, and to seek international support for, a new, not-for-profit corporation formed by private sector Internet stakeholders to administer policy for the Internet name and address system. Under such agreement(s) or understanding(s), the new corporation would undertake various responsibilities for the administration of the domain name system now performed by or on behalf of the US Government or by third parties under arrangements or agreements with the US Government. The US Government would also ensure that the new corporation has appropriate access to needed databases and software developed under those agreements (Ibid).

Through its *recommendations* and *statement of policy*, the US government prevented the Root from being transferred to an international body outside of its control. By effectively assuming US sovereignty over the persons governing the Internet, the US government secured effective control over the Root, and thereby the authoritative control centre of the Internet (DoC 1998).

The new corporation would, in effect take over the responsibilities of the informal community of Internet pioneers, and assume control over the domain name space, IANA – the Postel’s group for assigned network numbers - and set up policies for resolving trademark and other conflicts over domain names. Furthermore, the new non-profit organisation was to set up procedures for introducing new “generic” name spaces, i. e. top-level domains that were not associated with any particular country.

The white paper said that “Further, the US Government recommends that the new corporation adopt policies” whereby trademarks would be respected and cybersquatting stopped. The World Intellectual Property Organization (WIPO) in

Geneva, a specialised agency of the United Nations, would be the preferred vehicle for this.

The US government wanted the new non-profit organisation to “operate as a private entity for the benefit of the Internet community as a whole” and the board members would be drawn from around the world. The new corporation would also set standards for other Internet registries in the world, since its purpose would be to:

1. set policy for and direct allocation of IP number blocks to regional Internet number registries;
2. oversee operation of the authoritative Internet Root server system;
3. oversee policy for determining the circumstances under which new TLDs are added to the Root system; and
4. coordinate the assignment of other Internet technical parameters as needed to maintain universal connectivity on the Internet.

Government representatives would not be members of the governing committee, except “from participating as Internet users or in a non-voting advisory capacity”.

On the geographical placement of the new organisation, the US government stated: “As these functions are now performed in the United States, by US residents, and to ensure stability, the new corporation should be headquartered in the United States, and incorporated in the US as a not-for-profit corporation” (Ibid). It would seem that this fact provided the ultimate rationale for the *recommendation* of the US government in its white paper.

ICANN

Over the next two years, the Internet Corporation for Assigned Names and Numbers (ICANN) was established. How the first members of the board were appointed – or what was discussed – is a secret. In the words of icannwatch.com:

Shortly thereafter, an international group, after meeting in secret, incorporated ICANN as a private nonprofit California corporation. After some negotiation, DoC lent ICANN much of its authority over management of the DNS (icannwatch.com 2003).

All that is known from the first days of its existence, is that most leading posts at ICANN were filled by well-known names from the previous governing bodies of the Internet (Froomkin 2000). In the US government white paper, representativeness was an important issue:

We continue to believe that as use of the Internet expands outside the United States, it is increasingly likely that a properly open and transparent DNS management entity will have board members from around the world. Although we do not set any mandatory minimums for global representation, this policy statement is designed to identify global representativeness as an important priority (DoC 1998).

On the running of the non-profit corporation, two other concerns were important to the US government:

3. Private, Bottom-Up Coordination.

Certain management functions require coordination. In these cases, responsible, private-sector action is preferable to government control. A private coordinating process is likely to be more flexible than government and to move rapidly enough to meet the changing needs of the Internet and of Internet users. The private process should, as far as possible, reflect the bottom-up governance that has characterized development of the Internet to date.

4. Representation.

The new corporation should operate as a private entity for the benefit of the Internet community as a whole. The development of sound, fair, and widely accepted policies for the management of DNS will depend on input from the broad and growing community of Internet users. Management structures should reflect the functional and geographic diversity of the Internet and its users. Mechanisms should be established to ensure international participation in decision making (Ibid).

Finally,

Governance. The organizing documents (Charter, Bylaws, etc.) should provide that the new corporation is governed on the basis of a sound and transparent decision-making process, which protects against capture by a self-interested faction (...) (Ibid).

To ensure that “management structures should reflect the functional and geographic diversity of the Internet and its users”, it was decided that a certain number of directors should be elected by net users. In the first proposal for bylaws, nine directors would be nominated by existing Internet organisations, and nine directors elected by the “At large” group of ordinary net users. The appointed president would be the 19th member of the board (ICANN 1998).

In the original election plan, the electorate consisted of any person with an email address and physical address who registered as a voter. A minimum of 5 000

registered members were needed for the elections to be valid. Voting would take place on the Internet by electronic voting using PIN numbers received in the mail.

The elections were going to be indirect; members voted for an 18-person “At-Large Council”, which in turn elected the nine At-Large Board members. The elections would be in two stages - one-third of the seats were filled first, with a second election for the remaining seats to follow an evaluation of the first election. The election of all new At-Large board members was to be completed by September 30, 2000, with the last stage of elections ending by July 2000 (CDT 2000).

The results of the At-large elections on 11 October 2000 showed that North America and Europe were the two regions where the elections had been widely publicised and discussed. All of the candidates nominated by ICANN were defeated. The winners were opposed to and very critical of ICANN’s policies and practices (Mueller 2002). The illustration below shows the election results:

Table 9.1
At-Large Election Results

Candidate	View on ICANN	Nominated by	Votes
North America			
Karl Auerbach	Very critical	Members	1,074
Barbara Simons	Critical	Members	771
Lawrence Lessig	Critical	ICANN	725
Emerson Tiller	Critical	Members	490
Harris Miller	Supporter	ICANN	179
Lyman Chapin	Supporter	ICANN	127
Don Langenberg	Supporter	ICANN	83
Europe			
Andy Mueller-Maguhn	Very critical	Members	5,948
Jeannette Hofmann	Critical	Members	2,295
Winfried Schuller	Critical of U.S. Department of Commerce	ICANN	990
Alf Hansen	Supporter	ICANN	629
Olivier Muron	Supporter	ICANN	544
Maria Livanos Cattai	Supporter	ICANN	514
Oliver Popov	Supporter	ICANN	389

Illustration no. 8: The result of the At-large elections for the ICANN board of directors (Mueller 2002)

Following its defeat at the elections, the ICANN management and board decided to keep elected directors out of the selection process for new top-level domains by

creating a new executive committee consisting of members friendly to the ICANN management (Ibid, p. 201).

A study from the Center for Democracy and Technology concluded that "there is widespread and intense skepticism of ICANN's ability to implement credible, publicly legitimate At large elections by September 30, 2000". Not only was ICANN's purpose not properly defined, according to the organisation. It lacked legitimacy from its electorate, and the elections were prone to rigging and inaccuracy. Rather, elections should be direct and make it possible for different viewpoints to be represented on the ICANN board (Ibid).

In the end only five directors were appointed through the At large elections. Karl Auerbach was elected by Internet users in Canada and the United States. In October 2000 he requested access to all ICANN documents. When the management and the rest of the board denied him such access, he went to court. Auerbach argued that ICANN's denial of the voter lists was in contravention of the Corporations Code of the State of California under which ICANN was incorporated. He won the case in August 2002, in a court case paid by the Electronic Frontier Foundation (LASC 2002).

When Auerbach's term was over in 2003, the experiment with elected directors was ended by the ICANN board. In a statement before a US Senate sub-committee, Auerbach said that the election in the autumn of 1999 had some strange characteristics and failures. Many voters were denied the ability to register to vote, or if registered, were not given sufficient information and pass codes in order to cast their vote. Neither candidates nor voters were allowed access by ICANN to the voter lists. This made it nearly impossible for the voters to discuss matters except via the limited channels provided by ICANN. Voters were unable to form coalitions or parties, otherwise organise their votes, or to promote their favoured candidates. Auerbach concluded that, in the long term, this practice would damage the ability of ICANN's voters to evolve into a well-structured and principled institution (Auerbach 2002).

ICANN's membership registration system was designed to accept 10 000 members. More than 158 000 persons decided to join ICANN. Probably, many others did not succeed in registering (ICANN 2000b). In order to avoid court challenges, the bylaws were changed to state that

the Corporation shall not have members as defined in the California Nonprofit Public Benefit Corporation Law ("CNPBCL"), notwithstanding the use of the term "Member" in these bylaws, in a selection plan adopted by Board resolution, or in any other action of the Board. Instead, the Corporation shall allow

individuals (described in these bylaws as "Members") to participate in the activities of the Corporation (ICANN 2000a).

Another of Auerbach's criticisms of ICANN's structure, was that it seemed "designed to include selected business interests - particularly those of trademark owners and DNS name registry/registrars - and to exclude Internet users" (Ibid). The protection of property rights had been one of the tasks given to ICANN by the US Department of Commerce in its white paper. The UDRP (Uniform Dispute Resolution Policy) was accepted and introduced by ICANN in November 1999 in order to provide for "a fast and efficient procedure for the settlement of conflicts between domain name registrants" under the Top Level Domains (TLDs) *.com*, *.org* and *.net* and the holders of trade mark rights. The administrative framework for the procedure was provided by Dispute Resolution Service Providers accredited by ICANN.

There were four such arbitrator services: WIPO, NAF, eResolutions and CPR. After the report was published, the Asian Domain Name Dispute Resolution Centre (ADNDRC) was approved by ICANN in February 2002 and added to the list.

Statistics show that the arbitration service was used frequently from the beginning. Since the first decision handed down by a WIPO Panel in December 1999, more than 4 000 cases involving over 7 000 domain names were handled. A study from the Max-Planck-Institute for Foreign and International Patent, Copyright and Competition Law in Munich, showed a clear preponderance of cases where the complaint was based on a registered trademark right. 84.26 per cent of these cases were ruled in favour of the trademark holder, leaving leaves 15 per cent for decisions where the complaint did not have such a clear and secure basis. In 76.68 per cent of all cases, a disputed domain name was transferred to a different owner than the first registrant (Kur 2002).

The frustration of ICANN being neither a government monopoly nor a legitimate private institution of governance was clearly expressed in a memo by Stuart Lynn in February 2002, after one year as president of the corporation. He described ICANN as "at best an incomplete experiment":

I have come to the conclusion that the original concept of a purely private sector body, based on consensus and consent, has been shown to be impractical. The fact that many of those critical to global coordination are still not willing to participate fully and effectively in the ICANN process is strong evidence of this fact (Lynn 2003)

The interests of netizens and private companies should in the future be represented by an Ombudsman, advising the Board of trustees. Lynn concluded that “the vast majority of the business community” had chosen not to participate in the ICANN process and that it had failed to reach consensus with non-governmental organisations:

(...) in the final analysis, national governments are perhaps the most irreplaceable supporters of ICANN (Ibid).

Lynn’s proposal for reform of ICANN was to strengthen its government-induced powers and become less answerable to netizens. Five of the posts in the board of trustees should be nominated by governments, according to his proposal, and ICANN should assume formal authority over geographic top-level domains such as *.dk* and *.co.uk* through a Geographic TLD Names Policy Council (Ibid).

In September 2003 ICANN’s agreement with the US Department of Commerce was renewed for another 3 years. Advisory councils would be set up for governments to take part in discussions. Non-governmental organisations could also form such an advisory council. A register of applicants for the At large advisory committee (<http://alac.icann.org/applications>) showed that the applicants were mainly local chapters of the old Internet Society, ICANN’s predecessor.

FAILING TO EMERGE FROM THE STATE OF NATURE

What can we, in the light of the two research questions, make of the struggle that took place between 1993 and 2005, involving the Internet founders, the International Telecommunications Union, the European Union, and the US government?

In their treatment of the Internet, actors reveal certain norms, values and rules, as will become apparent e. g. in the way that the domain name system of the Internet has emerged. By attempting to assert physical control of the legacy Root file - the ultimate traffic regulator of the Domain Name System (DNS) - the hegemonic state power has challenged the citizens of the Internet (netizens), as well as the interests of other members of the international society of states.

Multi-stakeholder demands

On 30 June 2005, in the run-up to the ITU-sponsored World Information Summit to be held in Tunis in November 2005, the United States government took the step of issuing a statement on *Principles on the Internet’s Domain Name and Addressing System*. The statement is published on the website of the National

Telecommunications and Information Administration, a part of the US Department of Commerce (NTIA 2005). In the statement by Assistant Secretary Michael D. Gallagher, the U. S. government states that

1. Its main concern is the security and stability of the Internet and that it “will therefore maintain its historic role in authorizing changes or modifications to the authoritative root zone file”
2. Each state has legitimate public policy and sovereignty concerns with respect to the management of their ccTLD.
3. ICANN should continue as the manager of the Domain Name System they “encourage an ongoing dialogue with all stakeholders around the world” (Ibid).

In the Geneva-based preparation for the World Information Summit, developing countries had expressed unease at US intransigence in a matter that they felt concerned a global resource, not only the United States. In October 2005, the European Union threw its weight behind demands for a broader governance model, involving not only the US government. David Hendon, spokesman for the EU delegation at Geneva, said that “we want ICANN to operate under international law and be responsible to all governments (...) we see the role of governments as establishing certain policy principles, not managing the domain name system” (Williams 2005).

Here, the European Union – chaired by the UK government - seems to have taken a position short of transferring sovereignty to a United Nations body. In a compromise position, the technical oversight would remain with ICANN, but a “multi-stakeholder” forum would bring together governments, the private sector, civil society and other groups. In addition to management of the DNS, other problems – such as spam, cybercrime and privacy – would have been handled by such an international body (Ibid).

Since the 1990, the European Union had wanted a Europe-wide domain name as a supplement to country domains such as *.be* (for Belgium). As an international organisation, the European Commission was entitled to using an *.int* domain name along organisations such as NATO and the World Trade Organisation. The domain name rules established by Jon Postel had not included entities such as the European Union, which is not a state and more than a cooperation between national governments.

In October 2004, the European Commission decided, after an open competition, to sign a contract with EURID, a consortium of European registrars. On the 21st March 2005, the first *.eu* were included in the Root file by ICANN. On 6th April 2006, after a procedure for trademark holders, European businesses started to use the world's first transnational, geographic domain name (EURID 2005). The *.eu* domain space differs from generic, international domains such as *.com* – that are open to everybody – because only persons registered in the European Union would be allowed to register them. In November 2008, a total of 2 964 835 *.eu* domain names had been registered (EURID 2008).

Realists

By refusing the proposal of the ITU-centred and Geneva-based gTLD-MoU initiative, the US government places itself solidly in the realist tradition. By reminding Jonathan Postel that his research was funded largely by the US government, and that he and his colleagues were US subjects on US soil, the sovereign made his point very clear. The White House would not accept him transferring control of the ultimate Root file to international control.

After its meetings in Shanghai in October 2002, ICANN in practice abolished its electorate and started seeking legitimacy through primarily the United States government, but also other interested governments.

On the other hand, the failure to achieve consensus with the holders of ccTLDs (country code top level domains), had left the world a more insecure place with regard to Internet governance and regulation, and the position of trademark holders outside the United States. Regarding the generic top-level domains, there is no doubt that the UDRP (Uniform Dispute Resolution Policy) is within the jurisdiction of ICANN. But ICANN has, backed by the US government, tried to persuade ccTLD managers to accept its mandatory rules for arbitration, the UDRP, also in other jurisdictions. European national registries have resisted, but smaller national registries such as the Bahamas, Belize, Cocos Islands and Malawi, have accepted ICANN's dispute resolution policy under local jurisdiction.

The governments of countries such as Denmark, the Netherlands, Poland, Sweden and South Africa have rejected US model rules and implemented their own. In the field of domain name conflict resolution, there lacked the common interest and common values that would have enabled the international society to resolve the conflict. Against these “softer” elements of international order, the “harder” institutions of international society had to be counted on. Having failed to find consensus with the European Union and other actors, the US government took charge

of this international policy field by defining it as a mainly national matter, but one where foreign stakeholders might be appointed at the discretion of the US government.

On the 30 June 2005, the US government took another decisive step in the *realist* direction. A declaration by the US government not only asserted the need of the US to ensure the security and stability of the Internet, but seemed to declare publicly for the first time that the US government considers the running of other countries' domain names as matters of national sovereignty. It stated that "each state has legitimate public policy and sovereignty concerns with respect to the management of their ccTLD (...) the United States is committed to working with the international community to address these concerns, bearing in mind the fundamental need to ensure stability and security of the Internet's DNS" (NTIA 2005). In other words, each country has sovereignty over its own country domain name. They may manage this domain space as long as the fundamental interest of the US government is not damaged: in other words the smooth running of the DNS and the Root file.

The US call for national sovereignty over domain names may have ensured continued US control over the DNS, but also resulted in calls for greater national control from other states. Denmark, France, Spain and the Netherlands called for greater government influence over the Internet (NTIA 2005).

An example of such increased internal sovereignty is Denmark, where on 16 June 2005 an act of parliament stated that "domain names that are specifically allocated to Denmark, belong to the Danish state". Every legal person who had until now been convinced that he had property rights to a name under the *.dk* domain now found that his property rights had been transferred to the Danish state. Between 1999 and 2005 all domain allocation in Denmark had been handled by DK Hostmaster, a limited company wholly owned by Danish Internet Forum (DIFO), a foundation started by ISPs and other business interests (DK-Hostmaster 2005).

Paradoxically, the reason for abolishing the old regime in Denmark was given by the government as "ensuring the self-regulation of the Danish Internet society". A number of domain resolution cases had left the Danish Internet Forum in civil court cases with trademark holders. In these cases, legal parties could claim that DIFO was a self-appointed entity and had no right to interpret the rules. They therefore felt that an Act of Parliament would secure their legal rights and better enable them to run the Danish country domain.

Since the Danish state had taken over ownership of the *.dk* domain it was forced, under EU rules, to subject the running of the *.dk* domain to public tender, which it did

on 1 April 2008. A competing group of business interests - with the international group Afilias as administrator - wanted to run the registry instead of the DIFO. The consortium stated that they were able to run the domain cheaper and more efficiently, and lower the fees for both users and registrars. Also, they wanted to introduce personal domains for IP telephony, allocating a personal domain to each citizen (DotDK 2008). Nobody had expected a challenger to DK Hostmaster. The Danish Minister of Science and Technology was therefore left with deciding whether the administration of the .dk domain should leave the country or be left to the incumbent, which offered objectively less attractive conditions for the Danish state, but was rooted in the country's pioneer Internet establishment.

In its 1998 white paper, the United States government defined the most important stakeholders in Internet governance. There was a “broad-based, representative group of Internet stakeholders” and “since the organization will be concerned mainly with numbers, names and protocols, its board should represent membership organizations in each of these areas, as well as the direct interests of Internet users.” Further, “the organizing documents (Charter, Bylaws, etc.) should provide that the new corporation is governed on the basis of a sound and transparent decision-making process” (DoC 1998).

The US government is free to assert its control of the Internet in its jurisdiction, but by failing to establish a social contract with those parties that it defined as stakeholders in its 1998 white paper, the Internet community may still be said to exist in a state of nature.

In the realist view, any political rights on the Internet are possessed by each sovereign state. In cases where a country code Top-Level Domain is disputed, governments have the right to take over the name space, as in the case of Pitcairn Islands. In the case of Palestine, the top-level domain name existed in the Root (since it was on the ISO-3166 list), but it was not released by the US government, that physically controls the Root file, for several years (Froomkin 2000).

By pointing out that the origins of the Internet was financed by the US government, moral or legal concerns that surround the Internet must be solved through existing national state structures. The US government is, according to this view, free to assert legitimate pressure on other state to promote the goals of the US government. By limiting the introduction of new - international - top-level domains to only seven (and rejecting 35 others), ICANN served the national interest by limiting namesquatting for US companies.

In certain respects, there is a state of war on the Internet. Thomas Hobbes reminds us that the life of man is “solitary, poore, nasty, brutish, and short” (Hobbes 1968) and that the condition of man in the state of nature is “a condition of Warre of every one against every one; in which case every one is governed by his own Reason (...) And therefore, as long as this Natural Right of every man to every thing endureth, there can be no security to any man” (Ibid, p. 190).

The US government has established a special cyber-system that would warn against attacks on the US’ critical infrastructure (Wired 1998). A special unit has been set within the FBI to fight cybercrime. According to the head of the division, Larry Mefford, fighting the war on the Internet is one of FBI’s top priorities (Kane 2002). Throughout the 1990s, US phone companies and Internet providers were obliged to install a system codenamed Carnivore; switches that would give US government agencies the right to tap phone calls and Internet communications directly – after a court order was issued. Not only may these agencies enter the servers of the citizens, but after the 11 September 2001, a whole new range of laws was rushed through Congress to allow representatives of the US government to monitor communications, including e-mail and commercial transactions – without a court order. Since the Internet knows no borders, the US government has proposed treaties that will extend cooperation against cybercrime to other states.

ICANN has proposed that it should get a monopoly on assigning top-level domain names in order to ensure that all Internet users are able to access an Internet site (ICANN 2001). In 2003, the ICANN bylaws were amended to comprise a Country Code Supporting Organization (ccNSO), consisting of representatives of the national domain name registries. The ccNSO will be allowed to develop policy recommendations to the ICANN board (ICANN 2003).

The lawyer A. Michael Froomkin writes that the US Department of Commerce has treated decisions towards the DNS as if they were either policy matters outside the Administrative Procedure Act; matters of contract, or as if ICANN were a private arms-length body exercising autonomous choices.

DoC has, thus, made, or acquiesced in ICANN’s making, some of the most important decisions relating to the near-term future of the Internet via research contracts rather than agency adjudication or rulemaking, thus evading notice, comment, due process, and judicial review (...) some of the most significant outputs from ICANN are government regulation in all but the name. It is time to call them what they are (Froomkin 2000).

In Froomkin’s view, ICANN should not be outside constitutional control. He argues that however one characterises the US government’s interest in the Root file,

there is little debate that the Department of Commerce derives its authority from its ability to instruct a US government contractor. Froomkin cites a number of Supreme Court rulings and concludes that the relationship between the Department of Commerce and ICANN is either unconstitutional or illegal, depending on whether ICANN is considered to be a government agency, a contract partner or a privatised arms-length body (Froomkin 2000).

It may be argued that the United States government merely secured the safe functioning of the Internet in the absence of shared values and established international law. Had the US ceded sovereignty over the Internet, rules and conventions might have emerged slowly, but possibly in a form that was contrary to national US norms and values.

First, there is the possibility that the legacy Root file could have been moved from Herndon, Virginia, to Geneva without a proper system of governance having been set up by the ITU. In the ITU, democratic states would have had the same representation as non-democratic or failed states. The interoperability of phone lines is frequently considered a non-political undertaking, but has been used for political ends in the past, e. g. by East Germany in restricting the ability of citizens to make phone calls to the West (Colchester 2001).

Even though the World Wide Web was designed to spread ideas across the world, authoritarian governments have plenty of opportunity to eavesdrop, disturb traffic and falsify web pages within their national borders. Moving Internet governance to the ITU would not change that situation, but would give representatives of such countries a formal say over the allocation of top-level domain names and the adoption of communication standards. Whereas the Internet now is distributed and decentralised, it is not impossible that representatives of certain governments would have a national interest in promoting centralised communication standards. These could take the forms of government-approved network switches, such as is the case with phone networks.

The United States, on the other hand, might consider the present structure of the Internet as more compatible with the US freedom of information tradition: decentralised network switches and nodes that handle traffic from a wide range of competing producers, as long as they follow certain technical standards of communication.

As we have seen, central US business interests are also at stake. Even though the arbitration procedure for several top-level domain names takes place mainly outside

the US national court system, the idea of moving the governing institutions of the Internet from US soil may be a more frightening matter.

This does not mean that the US may not in the future transfer jurisdiction of the Internet legacy Root to an international government organisation of which it is a member. In the case of the upheaval between 1996 and 1998 – and rather than risk the breakdown of the Internet - the United States invoked one of the central institutions of international society, namely that of national sovereignty. Thereby it reduced uncertainty and insecurity for all members states, and secured its national interest.

Rationalists

Rationalists view Internet governance as a system of state actors and their common norms and values. The international system is a civil society of member states with legitimate, sometimes conflicting interests, but they attempt to regulate possible conflicts through international law and negotiation.

John Locke says that when a person leaves the state of nature to enter a social contract, he “must be understood to give up all the power, necessary to the ends for which they unite into society” (Locke 1993). No-one can enter into the contract under duress; all parties to the contract must agree to it. When such a contract can be established, the sovereign is bound by it – but is not a party to the contract. Like Hobbes, Locke does accept tacit consent. Someone holding property under the protection by the state, has also consented to that function of the state. In this sense we may say that John Locke is a rationalist. He sees clear advantages in reaching a consensus. By giving up certain right, the citizens will gain other right, such as the protection of property by the state (Ibid).

A look at the WIPO database of national dispute resolution regimes makes it clear that a large majority of the world’s Internet registries don’t have a conflict resolution policy.⁸ It means that American corporations must defend their trademarks in local courts in most jurisdictions. If Internet governance had been transferred to an ITU-centred coalition, copyright law would probably have been better regulated by international treaties.

ICANN has international representatives on its board of directors. Even though none of them are considered unacceptable to the US Department of Commerce, all members of the board are part of a community of individuals with shared norms and values; *an international cyber society*. Their prime concern is not that the Internet should be ruled by popular consent *per se*, but that its system of governance should be

⁸ <http://ecommerce.wipo.int/databases/cctld/output.html> (accessed 23 November 2003)

efficient and therefore legitimate to the governments that – in many cases – represent the population of the states in the Internet system.

Their job is to make sure that all countries can utilise the Internet in a reasonable manner without “too much focus on process and representation, and not enough focus on achieving its core mission”, in the words of its president, Stuart Lynn (Lynn 2003). They consider their job to be to ensure that technical standards exist to ensure that networks interconnect smoothly.

Half a year before ICANN’s contract was about to expire – in 2006 – the debate on Internet governance was re-awakened. The demand from developing countries and the European Union were repeated. The growing importance of the Internet made it increasingly unreasonable that sovereignty over the Root file should rest ultimately with one state, the United States.

The prospect of giving states such as China or Tunisia – that practice widespread censorship and control over the Internet – a formal say over the running of the Internet in other states, did not appeal to business interests in Europe and the United States. They saw the US government as a guarantor not only of the security and stability of the Internet, but as a guarantor of the Internet as a place with free speech and the absence of censorship.

An example of such concerns was an article in the Swedish daily *Svenska Dagbladet* by the two Internet pioneers Olof Hallström and Patrik Lindén from the Swedish II foundation, that governs the Swedish part of the Internet. In their opinion, a strong US hand in the governance of the Internet is not a threat, but rather a precondition for the further development of the Internet. They write (author’s translation):

In a perfect world the organisations governing the Internet would not have any strings to states, but it is thanks to the United States that the development has been made possible (Hallström and Lindén 2005).

Hallström and Lindén warn against replacing a well-functioning system with an unknown system. Countries such as China and North Korea discuss how the spread of information on the Internet can be limited and that would be a very worrying development, the two scientists warn (Ibid).

In this respect their role is similar to that of the International Telecommunications Union of the United Nations, that ensures that disparate phone systems are able to interconnect through borders. The difference is that ICANN is constituted by one state, that insists that it should remain on US territory and mainly be run by US citizens. In an international organisation every state is, by treaty, equal and there is a

system of governance in place that ensures that no state can overrule other treaty parties except after due process.

In a situation with several Root systems, rather than only the one run by ICANN, the role of the ITU would have been to ensure that all of the world's "Internets" would interconnect. The Internet standards would become ITU standards (as indeed some have become), and the standardisation committees would all operate under the auspices of a UN organisation.

During meetings of the World Summit on the Information Society, a UN-supported conference of non-governmental organisations, there were renewed calls for ICANN to be brought under the control of civil society. In July 2003, in connection with the Intersessional Meeting in Paris, several participants felt that Internet governance should be included in the statement of the conference. The first version of the Civil Society Priorities document stated that the current management of Internet names and numbers as well as other regulations "should be re-examined with the full participation of all stakeholders ...". Another proposal was that ICANN and the ITU should provide competing (but interconnected) Root servers, in order to provide competition to the US regime of governance (Worldsummit 2003).

The Internet is widely used by human rights organisations and other groups to mobilise support for their causes. The Internet is outside national control, so governments can either try to stop the web server or stop citizens in its jurisdiction to access the Internet. When Amnesty International focused on human right breaches in Tunisia, the Tunisian government established a web site that looked similar to that of Amnesty International, but at the domain www.amnesty-tunisia.org. It led to so much publicity that was bad from the Tunisian government point of view, that the web site was closed down (Amnesty 1999).

Iraq, like many other Arab countries, had chosen the other strategy. In 1999, it was reported that Iraq had 0 Internet connections, an illustration of the varying interest of states in allowing Internet access for its citizens.

On the 29 September 2006 the agreement between the US Government and ICANN was renewed - this time in the form of a Joint Project Agreement between the US Department of Commerce and ICANN. The agreement would expire on 30 September 2009 ICANN (DoC 2006).

At the end of April 2007, a conflict arose between Estonia and Russia. A Russian war memorial was removed from the centre of Tallinn to a military cemetery, provoking harsh reactions from Russia. For 2 weeks, a number of official and private web servers in Estonia were subject to distributed Denial-of-Service-attacks,

originating from computers in Russia. "If a member state's communications centre is attacked with a missile, you call it an act of war. So what do you call it if the same installation is disabled with a cyber-attack?" asked a senior official in Brussels (Economist 2007).

A similar attack took place against the Republic of Georgia on 20 July 2008 - well before Russian bombs started hitting goals in the country. According to Shadowserver, a voluntary research group monitoring malicious network activity, the web site of the Georgian president, Mikheil Saakashvili, was made inaccessible for 24 hours preceding the first bomb attacks (International Herald Tribune 2008).

The repeated cyber attacks led the NATO countries to announce in the declaration of the Bucharest Summit on 3 April 2008 that "NATO remains committed to strengthening key Alliance information systems against cyber attacks. We have recently adopted a Policy on Cyber Defence, and are developing the structures and authorities to carry it out" (Bucharest Summit Declaration 2008). A month later, in May 2008, it was announced that the alliance would establish a Cooperative Cyber Defence centre in Tallinn, Estonia. With an initial staff of 30 people from 7 alliance countries, the centre would conduct research and training on cyber warfare (NATO 2008).

Revolutionists

In the universalist tradition, the Internet revolution is driven by individuals in an international world society. Morally, the sovereign state must always answer to a higher authority: mankind or *universitas*. In the same way as Kant considered sovereignty to be a hindrance for the Renaissance, the existing system of sovereignty is a hindrance for the ultimate values of mankind (Wight 1987; Kant 1989).

In the Internet society of netizens, individuals, non-state organisations, and the global population on the whole constitute those societal identities and arrangements which we may call the *cyberstate*. John Perry Barlow's *declaration of independence in Cyberspace* represents one strand of the Internet world society.

I have argued that in one sense John Locke is a rationalist. He sees clear advantages in reaching a consensus and leaving the state of nature, since other rights can be gained by such a covenant. Locke does not, however, believe that a social contract can bind future generations. Consent must therefore be an acceptance of ongoing operations. If this covenant is violated against by the sovereign, the parties to the social contract – of which the sovereign is not a party – may decide that the sovereign has declared war on the citizens (Ibid, p 123). By exercising their *universal*

executive power of the state of nature the citizens may re-establish natural law as a reaction to the breach of contract by the tyrant (Ibid, pp 229-230).

Even though Kant is not primarily a contract theorist, he describes both the state of nature and the utopian goal of a society of mankind. In Kant's version of the social contract, there is no requirement of an ongoing consent, but all citizens must be part of the social contract when it is established, and life in the state of nature ("was von Menchen im gesetzlosen Zustand nach dem Naturrecht gilt") is less secure than if it were possible to emerge from this state (Kant 1989).

Hedley Bull points to the seeming difference between the limited proposals in *Perpetual Peace* and the *Idea for a Universal History with a Cosmopolitan Purpose*. Nevertheless, according to Bull, Kant "does hold out a universal republic as an ideal" in which the international anarchy would be resolved by the creation of a *civitas gentium* and only reluctantly comes to accept the 'negative substitute' of a pacific federation (Hurrell 1990).

If we follow the social contract theory of John Locke, the Internet is still in a state of nature. According to him, man is fully justified to remain in the state of nature. Indeed, there may be good reasons for remaining in that state. And as Grotius argues, if there is original law (natural law) there is society. And it does not mean that the pre-contractual condition is non-social. There is intercourse and a condition of peace. In the view of Grotius the condition is unstable and less secure than if a social contract could be established.

In both the arguments of Locke and Kant, the society of mankind is constituted by individuals. Whereas Locke does see advantages in entering into a social contract, the goal for Kant is a state where the national states themselves become unnecessary. In the meantime, he accepts that sovereignty is possessed by states, but ultimately, sovereignty should be possessed by its rightful owners; the citizens of the world society, mankind or *universitas*.

Martin Wight maintains that Kantians will answer the question of *What is international society?* in a fashion like this:

International society is none other than mankind, encumbered and thwarted by the archaic fiction of an international society composed of sovereign states. States are not persons, they have no wills but have the wills of the individuals who manage their affairs, and behind the legal façade of the fictitious Society of Nations is the true international society composed of men (Wight 1987).

The Internet, therefore, belongs ultimately to the society of netizens. Even though they may in some sense have accepted to be ruled by nation states, they developed the Internet standards as members of the society of scientists and later made it available

to all of mankind. Through its open standards architecture, consensus-building working methods and spontaneous order, individual actors cannot be restricted by national governments very easily. The Internet was designed to be distributed, decentralised and nodal, so that no single entity could take control of it.

There are two “master-premises” in the Kantian pattern of ideas, according to Wight. Firstly, that the existing state of affairs, the existing arrangement of international life, are invalid and illegitimate; secondly, that they are going to be modified or swept away by the course of events themselves (Ibid).

Since the Internet is in the state of nature, the moral laws of individuals become very important. These laws are universally valid and there exists a global ethical commonwealth (Williams 1986). In order for commerce and peaceful intercourse to take place, certain conditions must be respected by everybody. This right of creating universal laws to regulate the intercourse between nations, may be called *ius cosmopoliticum* (Hurrell 1990).

In the view of Hurrell, Kant saw the reality of this global society in the trade and economic interdependence that existed between states, as well as in the transnational ties between individuals on which this was based. First, transnational ties generated powerful ties of mutual interest that would provide an important – if self-interested – impulse towards peace. Second, he believed that this free interaction would lead to the growth of the ‘spirit of enlightenment’. Thereby, there would be increasing agreement on the principles on which the peaceful relations between states should be based (Ibid, p. 203-4).

The Internet is, therefore, a universal community that has developed to the point where a violation of rights in one part of the world is felt everywhere, as Kant argues in *Perpetual Peace*.

In his work to create a new urban Marxist sociology, Manuel Castells takes the view that the social struggle takes part in the field of the Internet, too. Not only does capital coordinate quicker across borders, but production and power is re-arranged. Through a wide range of practices, *The Self* re-arranges its identity in relation to the new structure. New, powerful social movements arise. An effect of this struggle is that a group of marginalised people - what may be called the 4th world - is excluded from the *collective consumption* constituted by the Internet and its practices (Castells 2000).

TECHNOLOGIES OF FREEDOM IN ALL THREE PARADIGMS

Individual access to information

We have seen – in the previous section on the nature of the world wide web – that Berners-Lee envisaged a dynamic *pool of information* that could grow with the organisation, in this case the stakeholders of the Internet. The ultimate purpose is to spread ideas and information across the globe. Regardless of which of the three paradigms we consider dominant at any time, educational patterns will change. The greater agility of information access and exchange may erode deference to age, authority and existing institutions. When it comes to public debate – what we might call the *democratic discourse* – the prevalent view seems to be closer to what Ithiel de Sola Pool describes as “technologies of freedom” (Pool 1983).

The higher velocity of the information flow may have both good and bad effects. The good effect is that decision-makers can receive input earlier and from all parts of the organisation. Everybody that is informed may, at least theoretically, take part in the process and provide information input. *The market-place of ideas* (Mill and Himmelfarb 1974) is expanded and more views from citizens and ground-level groups may increase the legitimacy of what Easton calls *authoritative decisions* (Easton 1965).

Rheingold argues that bulletin board systems – preceding the Internet – are technologies advancing democracy. These online meeting places mobilise the citizens through exchanging ideas – and therefore increase social capital (Rheingold 1994). We may call these theories *mobilisation theories*. In contrast to the optimistic mobilisation theories, are the *reinforcement theories*. They suggest that, although use of the Internet will strengthen them, it will not create new social structures *per se*. Rather, the Internet will strengthen existing patterns of political participation. It might even, the pessimists suggest, widen the gap between citizens that have access to information and citizens that do not (Norris 1999).

The state of *complex interdependence* that Kaohane and Nye describe, has been enhanced by the emergence of new information and communication technologies (ICT) (Keohane and Nye 1977). Joseph S. Nye sums up the hypotheses on how information technology may affect politics and collective action:

1. Information technology reinforces global production strategies and markets and constrains government action
2. It decreases the relative importance of commodities and territory, and makes geographical distance less important. This, in turn, has an effect on the communities that underlie political action
3. The Internet makes borders more porous and jurisdiction less important

4. Information technology is changing the nature of banks and money in a way that will make both taxation and central control of monetary policy more difficult
5. Some virtual communities may develop interests and power independent of geography
6. The demise of broadcasting and the rise of narrowcasting may fragment the legitimacy that underpins central governments (Nye 1999).

Nye points to the paradox that even though the information revolution increases access to information at all levels, it could also have the effect of enhancing central government control. A negative effect of the faster information flow may be that governments try to hide decision processes by privatising public utility companies and therefore placing them outside public scrutiny. The increased use of spin-doctors by politicians may also be seen as a reaction to the instant agenda-setting of digital media (Nye 1999). Even in a distinctly realist perspective, the Internet is likely to change information processing and thereby bureaucratic organisations. Jane E. Fountain returns to the Weberian roots of bureaucracy. The bureaucrat as an ideal type is

1. Part of an official jurisdiction where the authority to give commands is given to certain persons
2. Part of a strict hierarchy
3. Receives his orders in written form (Fountain 1999).

Because of the spread of information processing, in particular the Internet, jurisdictional boundaries have become more permeable, Fountain argues. The external boundaries of government agencies and other organisations have increased partnerships with other organisations, private and non-profit entities, and improved relationships with customers.

In addition to affecting the production of goods and services, information technology affects coordination and control in organisations. Also, control mechanisms in bureaucratic organisations are affected. The local clerk accesses information as quickly as the manager at the top of the hierarchy and is able to act accordingly. Since controlling the access to information was a fundamental part of Weber's bureaucratic hierarchy, the Internet will have the effect of flattening organisations and increasing the expectations of lower bureaucrats to influence decision processes (Ibid).

For the individual actor, the dispersal of information means that it is more difficult for centrally placed managers to control the agenda. Thanks to the Internet, the local civil servant or corporate employee has access to information as quickly as the person at the peak of the organisation. The leader that was used to private deliberation before decisions were announced, must adapt to a new, fast-moving reality (Frissen 1997).

Splinternets

Netizens that do not accept the sovereignty of ICANN, could create alternative Root servers outside the jurisdiction of the official (legacy) domain system. On the new digital frontier, government attempts to stop the exodus into cyberspace has resulted in the creation of splinternets, i. e. new networks that are outside of state control. A company called *new.net* has established an alternative domain name structure – outside ICANN - with top-level domain names such as *.shop* and *.school* that are blocked by some Internet service providers, but – according to *new.net* – was available to 174 million worldwide users in November 2008.

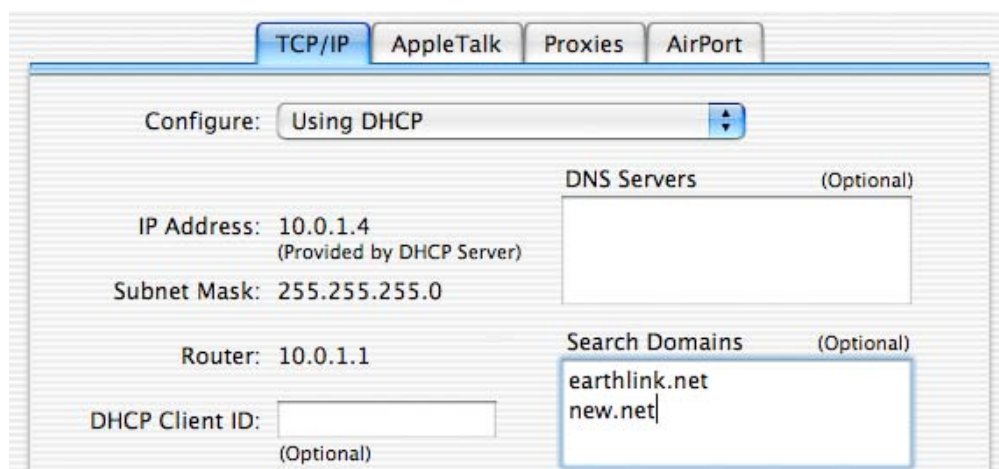


Illustration no. 9: Showing how a Macintosh client on the Earthlink net may add support for an alternative Root system, in this case that of *new.net* Surfing the Internet will be seamless, even when accessing domains such as *.shop* and *.mp3* that are not in the legacy – ICANN-approved - Root file.

Person-to-person encryption is another example of how communication may take place outside channels approved by government. Military-grade encryption programmes such as Pretty Good Privacy (PGP) may provide citizens with fairly secure communications, free from eavesdropping by the state. Phil Zimmermann

became the target of a three-year criminal investigation, because the government held that US export restrictions for cryptographic software were violated when the PGP code was spread all around the world following its publication as freeware in 1991. If private citizens were to be allowed encryption, it should be reserved for US citizens, according to the US government. Web browsers and mail encryption programmes outside the US should have a lower-grade encryption, so that the US government could have access to the information (Zimmermann 1999).

In April 1993, the Clinton administration unveiled a bold new encryption policy initiative, which had been under development at the National Security Agency (NSA) since the start of the Bush Sr. administration. The so-called Clipper chip, containing a new classified NSA encryption algorithm, would be inserted into all telephones, faxes and modems. It would provide “secure” communication. Each Clipper chip would be loaded with its own unique key, and the government would keep a copy, placed in escrow. The next logical step would be to outlaw other forms of cryptography (Ibid).

In 1991, the code for PGP had been spread around the world through Bulletin Board Systems – the predecessor of the Internet. On 17 February 1993, two agents of the US customs service visited Phil Zimmermann, claiming to be interested in the problem of licence with RSA Inc. On 10 August 1997, Ståle Schumacher, a Norwegian, published an international freeware version of PGP 5.0i for Unix. It was legal, since all code was exported not as computer code (that needed government approval) but in the form of a printed book (that did not need an export licence). The legally exported book was later scanned and read back into the computer with the help of an optical reader (OCR). Soon encryption was legalised in most countries. Letters to Phil Zimmermann from human rights groups in e.g. Romania and Guatemala tell stories of how human lives were saved and police beatings avoided because citizens were able to protect their information from governments.⁹

Niklas Lundblad thinks that intervention in the way the Internet is run will lead to citizens establishing completely separate technical structures (splinternets) that technically work like the existing Net, but physically are separate and outside government control. Other examples are *clans*, gaming communities that are physically separate from the big Net, but uses the same protocols and technology. Increased attempts by governments at controlling the Internet or removing the anonymity of its users will soon lead to polarisation between the “official” Internet and the splinternets (Lundblad 2002).

⁹ <http://www.philzimmermann.com/letters.shtml>

Political science literature in the last part of the 20th century considered the *gatekeeper* role of the mass media as central to well-functioning political systems and legitimate political processes (Easton 1965; Almond and Powell jr 1978). The image of the gatekeeper is also central in journalistic practice in the last part of the 20th century, and remained so until now (Singer 1997). During the 1990s, the notion of *mass medium* changed radically because of the emergence of digital, asynchronous media¹⁰. The proliferation of micro processors in world-wide networks, as well as news filtering mechanisms, renders the original notion of *mass medium* obsolete (Hall 2001; Rasmussen 2002).

The Internet was presented in the 1990s as the solution to all problems, including failing mobilisation of the voter population. Nicholas Negroponte believed that virtual democracy would empower citizens in an electronic world. In Scandinavia and the rest of Northern Europe, governments wanted to be examples to the whole world in the field of e-democracy and cyber democracy (Bangemann 1994; Dybkjær, Christensen et al. 1994).

The spread of information and ideas on the Internet may very well influence national political systems. During the 2004 US presidential election campaign, weblogs (blogs) played an unexpected large part of mediated election coverage. Because national media had agreed an embargo, weblogs across the country could present the likely election results before the poll stations had closed (Gillmor 2004).

President-elect Barack Obama relied in 2008 as much on rich and large campaign donors as the outgoing president, George W. Bush had 4 years earlier. But whereas Bush raised small contributions (less than USD 200) from 2 million donors in 2004, Obama increased the number of small donors to 3, 1 million. This was ascribed to a large extent to the increased use of the Internet as a campaigning tool (Mosk 2008).

The social media played an even greater role in the 2008 US presidential election. Data from Trendrr, an online statistic tool, showed that the Obama campaign was mentioned much more often in blogs. From the time that the party conventions ended in August 2008, 500 million blog posts mentioned Obama, whereas only 150 million blog posts mentioned the other candidate, McCain. The social network Twitter allows users to follow the moves and news of a candidate via their web site or mobile

¹⁰ I am using the terms “asynchronous, news-on-demand, individualised and user-centred” of media interchangeably. They all mean that the recipient (or user) is in command of the news consumption in the sense that he may choose the time and distribution channel of the news item, as well as filtering mechanisms.

telephone. 118 107 people were following Obama on the service, and only 4942 users decided to follow John McCain's Twitter account (Lardinois 2008).

An increase in individualised media is taking place on the *input side* of Easton's model: It furthers the informal channels of political communication, e. g. Internet communities, specialised media, narrowcasting, at the cost of formal channels of political communication, e. g. political parties or public service broadcasters. On the *output side* there are tendencies toward more direct democracy and agenda-setting by spontaneous policy coalitions. This may lead to a weakening of the formal political institutions and the role of careful deliberation. Rather than strengthen unrepresented groups, it could lead to a strengthening of lobby groups and a reinforcement of already powerful groups and special interests.

Easton says that the conversion of inputs to outputs can sometimes take place by bypassing the gatekeepers entirely, for example by grassroots movements in the form of what Easton calls *unmediated inputs* (Easton 1965). This is what we are seeing in the large selection of Internet-based information channels.

NON-STATE SYSTEMS OF COORDINATION

In practice, ICANN's quest for one, authoritative Internet may prove difficult as universities and companies establish the Internet 2, a high-speed private Internet. Unless force is used, it would seem difficult to stop companies from establishing alternative Root (domain) systems. The owner of the most successful, alternative Root system, *new.net*, argues that ICANN has failed because it has quickly evolved to assume a broad, worldwide regulatory role "without the authority, accountability, checks and balances, and legitimacy of a government to regulate effectively" (Duff 2002).

Instead, *new.net* proposes that the US government should retain control of the legacy Root system, but that other Root operators be should be able to compete, and that market forces should play a larger role. They advocate what they call a "thin" approach, a minimalist regulatory regime that does not favour vested interests. ICANN should become a *trade association*, lose its *de facto* monopoly, and compete with other agencies. Technically, it would be possible to allow competing Root servers and domain systems, opening up for competition in languages with other signs that the United States *ascii* alphabet (Ibid.)

Individual sovereignty

Can sovereignty be individual? The language of the social sciences is filled with examples of such sovereignty. In economics, consumer sovereignty is a well-known concept (Rothbard 1993). Well after the French Revolution, Benjamin Constant pointed out that the transfer of of the unlimited authority, commonly called sovereignty, from one set of hands to another does not increase liberty, but merely shifts the burden of slavery (Berlin 1969).

Rather than favour the freedom of the state to act - positive freedom - Isaiah Berlin says that the right of the individual to have an exclusive domain within which nobody may interfere - negative liberty - is more important: “The liberals of the first half of the nineteenth century correctly foresaw that liberty in this ‘positive’ sense could easily destroy too many of the ‘negative’ liberties that they held sacred. They pointed out that the sovereignty of the people could easily destroy that of individuals” (Ibid).

In this sense, the “technologies of freedom” may help the individual create and protect such a personal space free from taxation or information control.

State sovereignty

Hedley Bull states that the starting point in international relations is the existence of states or independent political communities,

each of which possesses a government and asserts sovereignty in relation to a particular portion of the earth’s surface and a particular segment of the human population (Bull 1977).

The state asserts *internal sovereignty* in the sense that it enjoys supremacy over all other authorities within the territory and population, as well as a monopoly on the use of force. On the other hand, the state asserts what may be called *external sovereignty*, by which is not meant supremacy or monopoly of the use of power, but in the form of independence of outside authorities (Ibid) ¹¹. This sovereignty régime is particular to the period after the Thirty Years War; from the Peace of Westphalia until the present day.

There are numerous examples of independent political communities that have asserted control over a population, but has not asserted it over a distinct territory: the Knight of Malta, the Vatican, and the Icelandic Commonwealth (that will be addressed later in the paper). We may therefore imagine the inter-state system as an arena, as a spectrum. On the one side of the spectrum are independent polities. Towards the other

¹¹ For a discussion of the extent to which states may be said to possess de facto (positive) sovereignty and the extent to which they depend on other states for independence (negative sovereignty) see Robert H. Jackson: Quasi states: sovereignty, international relations and the Third World (Cambridge, 1990).

end of the spectrum is an increasing degree of centralisation, where hegemony and dominion persist (Watson 1992).

Leviathan versus the individual

In the writings promoting the idea of transnational networks, individuals act on behalf of IGOs as well as NGOs. These *transnational relations* means that individuals communicate with each other as member of various networks that span societies and international borders (Keohane and Nye 1977). In both cases, the Internet offers new opportunities for individuals that wish to share or gain access to information quickly and outside official channels.

Michael R. Nelson, Director of Internet Technology and Strategy at IBM Corporation, thinks that new policy issues will arise as we enter the next phase in the development of the Internet. The growth of the Grid (or the Cloud), peer-to-peer applications, and Web Services will link together systems, databases, and software located in different companies and organisations in a variety of countries. This could unleash a new wave of innovation. It could also raise new government concerns about intellectual property, liability security, privacy, taxation, authentication, etc. (Nelson 2005).

In their book *The Sovereign Individual*, James Dale Davidson and William Rees-Mogg discuss “the coming revolution - how to survive and prosper in it”. They don’t think that the guardians of the Westphalian state will sit by quietly and watch their monopoly on power disappear. The increase in the number and intensity of international electronic transactions makes it easier for citizens to escape high-tax, high-spending jurisdictions and place their assets in low-tax, low-spending offshore havens via the Internet or other worldwide networks. The high-tax government officers will attempt to fight this development by establishing electronic and economic police forces, tap communication channels and collect taxes as best they can (Davidson and Rees-Mogg 1997).

The first characteristic of the Westphalian state is control of a territory. The second is controlling the population in it. In practice, this means a state monopoly on the exercise of violence, internally and externally (war). Robert Dahl writes: “In other words, the state is legally supreme: in the last resort, its authority is compulsory. The state is the ultimate regulator of force within its territory” (Dahl 1984).

The internal (national) and seemingly unitary power of political systems has been closely connected with the external sovereignty of states. At the turn of the 21st century, Alexander Wendt argues that mankind could be leaving what he calls “the

neorealist interregnum” and returning to the view that has been the central one in Western political philosophy: that political authority need not be centralised (Wendt 1994). There exists the possibility that the Westphalian sovereignty paradigm has merely been an exceptional position that is now undergoing change.

Susan Strange thinks that the Westphalian system can be changed or superseded. After the gold standard was abolished, governments have no incentive to restrict credit spending. Therefore, economic instability will increase with the higher amount and intensity of international transactions that are unregulated by the states. She claims that the national state can no longer control international financial markets, and therefore we will see the downfall of the Westphalian system (Strange 1999).

Whether we agree with Strange’s analysis or not, it may be worthwhile to leave the notion that challenges to the vestiges of state sovereignty may not necessarily come from competing states. In the Internet age, the individual, equipped with technologies of freedom, may also pose such a challenge.

Social systems as information systems

In his book *Kybernetiske systemers udviklingslove* (The development laws of cybernetic systems), Ib Damgaard Petersen argues that all social systems can be viewed as information systems. The characteristics of a social system are largely defined by the way in which information is gathered, disseminated and acted upon (Damgaard Petersen 1979).

I now proceed to discuss the information problem as an information system, both at an individual and an aggregate level.

An analogy to the economic problem

What is the information problem faced by the individual in society? According to Hayek, it is analogous to the economic problem: On certain familiar assumptions the answer is simple enough. If we possess all the relevant information, if we can start from a given system of preferences, and if we command complete knowledge of available means, the problem which remains is one of pure logic.

However, the economic problem society faces is not one of calculation, since the “data” for the whole society, from which the calculus begins, will never be available to one single mind. The economic problem, and the problem of information, is a different one:

the fact that the circumstances which we must use never exists in concentrated or integrated form but solely as the dispersed bit of incomplete and frequently contradictory knowledge which separate individuals possess (Hayek 1945).

The problem of information is, rather, how to secure the best use of resources to any of the members of society, for ends whose relative importance only this individual knows. Or, to put it briefly, it is a problem of the utilisation of knowledge which is not given to anyone in its totality. Hayek views the market as the best means of coordinating fragmented information (Ibid, p 6).

The price mechanism - the world's most advanced information system

Where the state planner lacks information, the individual possesses the information and uses it. Hayek finds that the answer to the previously posed question lies in the relative importance of different kinds of knowledge: “those more likely to be at the disposal of different individuals and those which we should with greater confidence expect to find in the possession of an authority made up of suitably chosen experts” (Ibid, p 7).

We are, consequently, concerned with knowledge which remains private most of the time and is only made public at the moment that the individual decides to reveal it.¹²

Contrary to this ‘orthodox’ view of the economic problem, the ‘Austrian’ school of economists treats the kind of knowledge that would be necessary for effective state planning as private information. First, it consists of preferences, in particular consumer preferences. The only planning possible at this stage is performed by acting individuals every day, consciously or unconsciously. Second, it consists of the knowledge of being in a unique situation (Reekee 1984).

For effective allocation to take place, this private information has to be revealed in such a way as to coordinate the decisions of millions of producers with the decisions made by millions of other producers and consumers. The individual knowledge of millions of individuals will often depend on decisions by other actors - that they don't know yet. These decisions are not of a nature that may be signalled through statistical aggregates or central planning (Hayek 1937).

The tendency towards equilibrium is only possible because of the information that prices signal to the entrepreneur. It enables him to take advantage of the price difference between demand and supply if he as go-between can make the two parties trade. This *entrepreneurship* is the essence of the competition process; it's equilibrating. Thus, the market is a continuous discovery and learning process, set in motion by the participants.

¹² We are not concerned here with situations where individuals are induced to part with private information by force or choose to use information strategically. For the latter sort of information mechanism, see e.g. Riker, William H (1982). *Liberalism against Populism*. San Francisco, CA, W H Freeman & Co.

The result of the market process - “the evenly rotating economy” in the words of von Mises - is therefore the only possible planned effect of economic activity (Kirzner 1973).

The implications of the Austrian approach is that a movement from disequilibrium (and uncoordination) to equilibrium (and coordination) is the entrepreneurial-competitive process, which is a process of communicating information. For the entrepreneur the Internet is now the primary source of exchanging such information. This is where new opportunities are discovered and where these opportunities are acted upon by the individual.

Information systems and information technology

In his 1942 article, Hayek suggests that the market (through the price mechanism as the signalling system) can be considered the world’s most advanced information system. It then becomes apparent that information systems existed long before the advent of the computer. Peppard defines information systems (IS) as referring to

the flow of information in an organisation and between organisations, encompassing the information the business creates, uses and stores (Peppard 1993).

IS, then, represents the applications perspective. However, many IS applications depend on technology in order to be viable. And IS applications that were previously of little interest, take on a new perspective when enabled by telecommunications, computers and automation technologies. Information technology (IT), on the other hand, represents the technical perspective. It may be described as

the enabling mechanism which facilitates the processing and flow of this information, as well as the technologies used in the physical processing to produce a product or service (Peppard 1993).

In the same way as state planning of the economy was in vogue in the 1920s and 1930s, the vision of information technology in the infancy of the computer age was one of centralisation and *dirigisme*. Supercomputers would communicate results to dumb terminals, and the operator would remain on the receiving end unless he had access to the programming room. When IBM first introduced its personal computer, the PC, software was limited, as were training and documentation. It was not unusual for first-time computer users to spend 30 or 40 hours to learn how to turn a PC on, bring the operating system online, use the PC productively. The introduction of the Apple Macintosh in 1977, and later the WinTel platform, changed that and made computing available as a consumer product (Barney 1997).

World power

When most of the world's personal computing power is linked together in networks, the total computing capacity far overshadows that of any supercomputer vision of the 20th century. Mooney defines IT as "the fusion of computers and telecommunications" that is "dramatically accelerating man's ongoing technical evolution in such a way as to radically transform his social structures ..." (Mooney 1996). It is this combination of the power of the microchip across worldwide networks (close to real-time) that makes it viable for man to use existing and latent information systems in new ways.

The dream of creating artificial intelligence (AI) has been around for a much shorter time than the dream of central planning. In the post-1945 era, numerous science fiction writers brought alive the notion of a "space" in which computer networking happens - an existence separate from, but no less real, than the physical worlds. William Gibson's 1984 novel *Neuromancer* first introduced the word "cyberspace"¹³. Gwyneth Jones, a science fiction writer, observes that science fiction stories obediently follow real science stories. For a long time they were concerned with bigness:

Early computer stories dwelt on size as the sign of power. The thinking machine was a BIG machine. There were rooms of it. It had a city of slaves to tend its circuitry, it dispensed its God-like pronouncements on punched cards that had the majesty of stone tablets. Or else the machine was a fake human, with a positronic brain and cybernetic circuitry (...). In either case the machine intelligence was of a different and more rarified kind than that of the human animal. The computer-that-was-God had access to enormous quantities of accurate information, manipulated by error-free calculations for unvarying results (Jones 1997).

This vision of the information society has so far turned out to be wrong. The main reason for this has been the fundamental misunderstanding of the nature of information systems, as well as the way that the individual acts on information that is revealed to him. With instant access to worldwide information systems, notably the Internet, the acting individual may access all the information that hitherto was unavailable to him. He may buy his books where they are cheapest or place his money in the bank with the highest interest rate, or in a state with a strong currency and a state deposit guarantee. He may access higher education at universities that offer the most useful and up-to-

¹³ *Cyber* is coined from the Greek word *kyber* - steersman.

date courses. And within a large organisation, the local actor accesses information as quickly as the manager at the top of the hierarchy, and is able to act accordingly.

Responding to the demand of the new informed individual, we are finding companies that offer their services worldwide, going for a small international market share rather than a large local market share.

The Icelandic commonwealth

I described earlier in the paper how an attempt was made during the period from 2000 to 2002 to create political legitimacy in the governance of the Internet through holding worldwide elections. The ambition was to elect half of ICANN's governors in constituencies that were independent of territory and the nation state. Had it succeeded, it would have been a satisfaction of the *revolutionist* norms and values of the Internet founders. The ensuing political system could have been one producing authoritative decisions without being in the hand of the nation state. The experiment collapsed amid great interest and insufficient logistical planning (CDT 2000).

I now turn to an earlier political system that, by all accounts, proved a success over a period of several hundreds of years. It was a political system without a state, and therefore worth studying for netizens who want to see the Internet established as a political system. The Icelandic Commonwealth (930 – 1262) was a system of private law in which market mechanisms, and not a government monopoly of power, provided the incentives to cooperate and maintain order. Laws were vested in *althingi*; the legislators were chieftains representing their assemblymen. Every Icelander was attached to a chieftain, either directly by being an Assemblyman, or indirectly by belonging to a household headed by an Assemblyman. A chieftaincy was private property, which could be bought and sold. Representation was determined by choice rather than by place of residence. An Assemblyman could transfer his allegiance (and attendance) fees to another without moving to a new district (Long 1994).

Thus, the Allthing passed the laws but had no monopoly of coercion. Adam of Bremen described Iceland as having “no king but the law”. Law enforcement was up to the individual with the help of his family, friends and Chieftain. Disputes were solved through forced arbitration, administered by the Allthing. If a claim could not be enforced, it could be sold to someone else. A person who did not obey by the rules, would be outlawed and could be killed without any protection of the law (Byock 1982; Byock 2001).

The chieftain's power was based on power that already existed in civil society. Buying a chieftainship was not sufficient to wield power. Unless some free citizens (farmers) would follow him, the office was worthless in itself. The authority was based

on individual support, not territory (Solvason 1992). The Icelandic commonwealth seems to have been a period of stable governance, with little violence or bloodshed, and a propensity towards problem-solving and avoiding conflict (Byock 1982; Friedman 1989).

According to many accounts, the Icelandic Free Commonwealth collapsed during the Sturlung period (1230-1262) and the hegemonic power (Norway) was called in to establish the peace. Roderick T. Long offers a different explanation. When the Church decided to declare Iceland Christian around the year 1000, a church tax was introduced. Until this point, religion was a private matter, and citizens could choose a Chieftain of his own religion, Christian or pagan. In 1097, the *tithe fee* was introduced. The fee was divided in four, each for a geographical area corresponding to that of the bishop, the local priest, local welfare and lastly, a churchstead fee for the maintenance of local church buildings. Whereas the fees to the chieftain was subject to competition, the churchstead fee was not. For the first time, a compulsory territorial tax had been introduced (Ibid).

Now, many chieftains became priests, and the power of some local chieftains became so large that they were able to impose compulsory taxes. According to Long

the seeds of territorial sovereignty were sown as many Chieftains began to acquire exclusive monopoly control of their districts. The Free Commonwealth was beginning to succumb to an alien disease common throughout Europe but hitherto unknown in Iceland – *feudalism* (Ibid, p. 3).

Suppose that the principle of territoriality had not been introduced in Iceland, and the upper number of Chieftains had not been fixed by law? Roderick T. Long believes that the Icelandic culture of competing legislatures could have been designed to stop the introduction of the tithe. Anyway, the polycentric legal system proved so stable that it provided stable governance for 300 years (Ibid, p. 4).

Long suggests that virtual cantons, based on the Icelandic model, could be used “to *decouple* political jurisdiction from geographical location”. Like the Icelandic Things, these cantons would have two functions: representation at the national level and government at the local level – with “local” now serving as a *structural* rather than a geographical concept (Long 1993). The system of competing jurisdictions is reminiscent of the proposal of the MoU top-level domain initiative. With virtual cantons, the principle would have been taken to its natural conclusion.

CONCLUSION

The three paradigms

In this paper, we have followed the evolution of the Internet at the three levels defined by Kenneth Waltz as the "image" of the individual, the state and the international society (Waltz 2001). The three classical paradigms defined by Martin Wight as *realism*, *rationalism* and *revolutionism* have appeared apt at describing the emergence - the history and development - of the Internet.

We can use the word *anarchy* - in its original Greek meaning - to describe the Internet's system of governance, since it is a society without a state. The Internet emerged as an efficient system of governance with clear standards, norms and values. At the same time, it is a system without a centralised state authority.

An inner circle of individuals, with shared norms and values, has been running the Internet Committee for Assigned Names and Numbers since its inception, and thereby the "legacy" Root that controls the Internet. The Internet emerged as a spontaneous order between 1973 and 2003 as the result of contributions by various members of the scientific community. The *de facto* standards submitted by Jonathan Postel were expressly addressed to "the Internet Community" by a founder who considered himself a trustee of the designated authority, with a duty to serve the community (Postel 1994). The first phase in the evolution of the Internet was aimed at the world society, mankind, in what was mainly a *revolutionist* normative approach.

A *rationalist* approach can be detected in the attempt by Jonathan Postel to transfer control of the Root file to the International Telecommunications Union - a part of the UN system - in 1997. Already, IANA had followed a number of ISO recommendations when geographic domain names were allocated, and technical standards were sought to be established in the context of The Institute of Electrical and Electronics Engineers (IEEE). In this sense, governance of the Internet has partly been embedded in the institutions of international society, i.e. institutions acting on behalf of governments.

The leading persons that were running the Internet could not operate independently of the states that are the constituent actors in international politics. As the economic and political importance of the Internet increased, a decidedly *realist* approach became evident on the part of governments. The United States, above all, moved to ensure that it retained *de facto* control over the Root, and thereby physically controlling the Internet legacy file. Initially, the Clinton administration intervened to stop the government of the Internet from being transferred to the United Nations (DoC 1998). The normative justification, however, was not that of ensuring power for

the hegemonic superpower. By establishing ICANN as a non-profit organisation under California law, the ambition was to operate “for the benefit of the Internet community as a whole” (Ibid). This began the second phase in the evolution of Internet governance, rule by ICANN under the silent, but implicit approval, of the US government. The ICANN electorate was abolished in 2002, which could be viewed as a decisive move from *revolutionism* to *rationalism* and *realism*.

In 2003, we entered a third phase in the evolution of the Internet. Many member states now planned to introduce a UN committee that would have representatives from several member states. At the World Summit on the Information Society in Paris in 2003, there were proposals for UN institutions to take command of the legacy Root, if necessary by establishing an alternative Internet in competition with ICANN. These proposals were taken out of the final communiqué (Worldsummit 2003). Before the next World Summit in Tunisia in November 2005, the European Union seemed satisfied that “we want ICANN to operate under international law and be responsible to all governments.” (Williams 2005).

A shift in US policy took place in favour of a more *realist* approach immediately before the Tunis meeting in 2005. For the first time the US government stated that “each state has legitimate public policy and sovereignty concerns with respect to the management of their ccTLD”. Not only would the United States consider the .com, domain to be within US sovereignty, but the US promised not to interfere with the management of geographic domain names in other countries (NTIA 2005). At the same time many governments, such as that of Denmark, that had liberal domain regimes governed by non-government organisations, now assumed state control over their country domain space. In effect, they nationalised the domain names allocated to their territory (DK-Hostmaster 2005).

The nation state operates in the context of an international society of states. Condoleezza Rice, in her letter to the British chairman of the European Council, states that the United States “believe that support for the present structures for Internet governance is vital “. She asked the European Union to withdraw its *new cooperation model* that would lead to “burdensome, bureaucratic oversight” and hinder the “success of the Internet” that “lies in its inherently decentralised nature”. Only by keeping Internet governance in its present structure – under US oversight – could the Internet reach its vast potential “for global economic expansion, poverty alleviation, and for improving health, education and other public services, particularly in the developing world” (Rice and Guterrez 2005).

In other words, in the view of the Great Powers and the European Union, the Internet can only expand and thrive under the oversight of the United States, ultimately governed by the values and norms guaranteed by the United States in dialogue with other sovereign states. State sovereignty and the dialogue between states can ensure the survival and expansion of the Internet, according to the US viewpoint.

Pluralist theories

The three classical paradigms as defined by Martin Wight entail that the norms, rules and institutions of the expanding international society interact with the domestic life of politics (Buzan 2001). From a realist perspective, the Internet has many of the characteristics and capabilities of a political system. Gabriel Almond and David Easton developed a framework for analysing political systems. A political system exists when the following elements are present (Easton 1965; Almond and Powell jr 1978):

1. Stable and clearly defined institutions exist for collective decision-making, *output*
2. Citizens and interest groups provide *input* in order to achieve political goals through gatekeepers or, in some cases, directly
3. Collective decisions are *authoritative* because they allocate economic resources as well as social and political values
4. There is continuous interaction, *feedback*, between inputs and outputs in the political system

The Internet governance system seems to fill most of these criteria in the different phases of its evolution. Had the *revolutionist* experiment at introducing a world-wide electorate - independent of states and the land mass - succeeded, it would have been more difficult for critics to question the legitimacy of Internet governance the way they did at the UN summits in Paris and in Tunisia. By failing to involve the rest of the Internet community – the outer circle of stakeholders - in the decision process, the inner circle fell victim to the success of the Internet: commercial and international interests became dependent on the output of authoritative decisions concerning the Internet. These interests, as could be expected, wanted to influence this political system. The political system became subject to stress, as is often the case when social systems in the environment seek to regulate the behaviour of a political system, transform its internal structure, and even go so far as to remodel their fundamental goals (Easton 1965).

After a brief attempt at holding elections to the board of ICANN, and thereby admitting the right of stakeholders to influence the input of the political system, the inner circle changed strategy. Rather than enter into a social contract with the netizens – the citizens of Cyberspace – ICANN decided to become the Leviathan of cyberspace and abolish the electorate altogether. In the words of Hobbes, the netizens would “stand in awe of the common power” and transfer all rights to ICANN, supported by the Machiavellian prince in the form of Ira Magaziner, president Clinton’s Internet adviser.

From a *rationalist* perspective, the Internet society missed the chance of emerging as a legitimate, international system of governance; a kind of international covenant of cyberspace. By failing to establish a social contract with the netizens that the US government defined as stakeholders in its 1998 white paper, the sovereign is not part of a covenant that protects the fundamental rights of netizens. According to John Locke, the sovereign therefore excludes himself from any legitimate right to rule the netizens, and leaves the citizens in a state of nature (Locke 1993). Michael Fromkin argues that, by keeping ICANN outside institutional control and democratic review, the establishment of ICANN may even be a breach of the covenant regulating the United States republic (Fromkin 2000).

The next phase

How will the next and fourth phase of the Internet evolve?

As John Locke reminds us, man is fully justified to remain in the natural state (Locke 1993). Hugo Grotius says that where there is natural law, there is society, and man is by nature a social being (Grotius 1925). Martin Wight and Hedley Bull remind us that behind the fictitious Society of Nations is the true international society, composed of men (Bull 1977; Wight 1987). To the United States, and the other Great Powers, there is good reason to try to preserve a unitary Root file that can be reached from all countries. There are great advantages for all users in maintaining a unified structure where any Internet address, not only some, can be reached from one networked computer. An advisory structure will no doubt be set up, following the Tunis summit in 2005. Through such advisory bodies, the US has entered into dialogue with other members of the International society, both nation states, the European Union, and non-government organisations. We have seen ICANN involve experts and organisations from Asia, Africa and Europe to an increasing extent.

States such as Tunisia, Libya and China will continue its practice of sensoring certain web pages, but they will not have the power to stop information from reaching citizens of other states as long as control of the Root is in the hands of the United

States. The US has followed a rather liberal policy by not censoring web sites or domain names. Even the Palestinian country top domain has long been released, and its first domain resolution case finished in October 2005. (Here, IKEA of Sweden got its Palestinian domain name back from a cybersquatter) (Marwan 2005).

The non-governmental actors and states that do not share the norms and values of the United States - including the constitutional right to free speech – are certainly able to create their own Internet Root file, be it under the auspices of the United Nations, the Arab League, New Net, or another entity. It might be problematic for the businesses of these countries if their domain names could not be reached from all computers in the world. Many of these domain holders might then choose to remain in the ICANN-controlled domain system, or be represented in both.

Should the US government leave its *laissez-faire* policy and start censoring domain names and web content, the citizens of *world society* might well start using the existing competing Internets, such as new.net, and establish splinternets that were outside the control of the United States government. Such alternative Internets may already exist today. Given the nature of clandestine networks, their existence would be difficult to verify. They would run the established technical standards, but might be physically sheltered from the “official” Internet – and therefore sheltered from the control of the state.

For the sake of argument, we may call such an alternative Internet the *Internet Free State*. It would be reminiscent of the order that existed in the Icelandic free commonwealth between 930 and 1263. This state had no monopoly of power, and citizens were able to move their prime loyalty between jurisdictions, and thereby between competing governments. The hegemonic power of Norway forced the Icelandic commonwealth to an end by introducing taxes and establishing a unitary state where the state was able to link the polity to territory and claim a monopoly on the legitimate use of coercion (Long 1994).

The Icelandic commonwealth’s system of competing government and forced arbitration under a minimum (“thin”) model of governance would seem to be a model more suitable to the diversity of the Internet than the Wesphalian state or the Internet Leviathan. Roderick T. Long may be right that virtual cantons, based on the Icelandic model, could be used “to *decouple* political jurisdiction from geographical location”. Like the Icelandic things, the virtual cantons would have two functions: representation at the national level and government at the local level – with “local” now serving as a *structural* rather than a geographical concept (Long 1993).

Should the Internet Free State become important, economically and politically, the hegemon – in the form of the United States - might be tempted to exert its power and bring this rebellious state within the system of the Westphalian society of states. Should such a state be allowed to evolve and become important, the system known as Westphalian would be changed or superseded.

The individual versus the state

Since Kenneth Waltz introduced his neo-realist thesis in 1954, a change has taken place in the interrelation between his three images of individual, state and international society (Waltz 2001). A stronger element of individual sovereignty has emerged, where the intensity of international transactions has made it easier for individuals to choose the most favourable jurisdiction for their activities. There is no reason to think that the guardians of the Westphalian state will sit by quietly and watch their monopoly on power disappear. According to Davidson and Rees-Mogg, government officers will attempt to establish electronic and economic police forces, tap communications and collect taxes as best they can (Davidson and Rees-Mogg 1997).

The individual seeks information because he wants to pursue the goals of his life – preferences that are likely to remain private until they are revealed in the market place. The Internet has the potential of becoming such a sophisticated marketplace, both in services and ideas (Hayek 1945).

The Internet Free State has capabilities that remind us of the capabilities of the territorial state. In the state of nature, individuals break into computer systems to disrupt transactions, steal credit card numbers or make political statements. But it also makes it possible for human rights groups to encrypt and hide information from the government torturer or private criminal organisations. By aligning itself closely with an agency of the US republic, and deciding not to answer to the Internet community at large, ICANN may have failed to make its decisions legitimate in the eyes of many netizens. Even though netizens may give its decision tacit consent by accepting some of the proposed standards and domain spaces, there is no covenant regulating the relationship between the netizens and the Sovereign. This covenant could have been achieved indirectly between the states in international society in the form of multilateralism and the United Nations, or in the form of a more sophisticated system of virtual cantons. In the absence of a social contract between the Sovereign and the netizens, each individual is free to pursue his own agenda.

The technological advances of the Internet has enabled the netizen to enhance his power by ensuring private communication, unhindered trade and the exchange of

relative prices across borders in real-time. A large number of international financial transactions are unregulated by the states. If control of financial markets is seen as an inherent part of national sovereignty, the expansion of individuals power - or sovereignty - takes place at the expense of state power (Strange 1999). It is worth noting that in the communiqué following the G20 Summit on the global financial crisis in the White House in November 2008, world leaders "reaffirmed their commitment to free market principles" and "agreed to refrain from imposing any new trade or investment barriers for the next 12 months" (G20 Summit).

A prerequisite for an informed, sophisticated citizenry is that the main information space, the Internet, remains free from censorship and central control. If not, the citizen may make use of his inalienable right to establish new information spaces that ensure – in Jefferson’s words – that we “leave open to him all avenues of the truth” (Siebert 1956). We don't know how many splinternets or clans there exist in the world society of netizens. By nature, these networks are outside of state control and public knowledge. However, the technical standards – as well as the norms and values – that have emerged as the Internet over the last 35 years, enable the Internet Free State to establish the digital commonwealth that Kant called the *ius cosmopolitanum*. In the words of Kant, the present arrangement of international life “may be swept away by the course of events themselves”.

References

- Abbate, Janet (1999). Inventing the Internet. Cambridge, Mass., MIT Press.
- Almond, Gabriel A. and G. Bingham Powell jr (1978). Comparative Politics: System, Process, and Policy. Boston, Little, Brown and Company.
- Amnesty (1999). Amnesty International launches Internet site to set the record straight on Tunisia "hoax" website, Amnesty International.
<http://web.amnesty.org/library/Index/ENGACTION830011999?open&of=ENG-TUN>.
- Auerbach, Karl (2002). Testimony before the Subcommittee on Science, Technology, and Space of the United States Senate Committee on Commerce, Science and Transportation. http://www.cavebear.com/rw/senate-june-12-2002.htm#prep_stmt 22 Nov.
- Augustine (1950). The City of God. New York, Random House.
- Bangemann, Martin (1994). Europe and the global information society: recommendations to the European Council. Brussels, [s.n.].
- Baran, Paul (1962). On Distributed Communication Networks, Rand Corporation.
- Barlow, John Perry (1996). A declaration of the Independence of Cyberspace.
<http://www.eff.org/~barlow/Declaration-Final.html> 20 August.
- Barney, Jay B. (1997). Gaining and Sustaining Competitive Advantage. Reading MA, Addison-Wesley.
- Benedikt, Michael (1991). Cyberspace: first steps. Cambridge, Mass., MIT.
- Berlin, Isaiah (1969). Four essays on liberty. Oxford, Oxford University Press.
- Berners-Lee, Tim (1989). Information Management: A Proposal, CERN.
<http://www.w3.org/History/1989/proposal>.
- Bucharest Summit Declaration (2008). Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Bucharest on 3 April 2008. <http://www.nato.int/docu/pr/2008/p08-049e.html#cyberdefence>.
- Bull, Hedley (1977). The Anarchical Society: A Study of Order in World Politics. London, Macmillan.
- Bull, Hedley, Kai Alderson, et al. (2000). Hedley Bull on international society. New York, St. Martin's Press.
- Bull, Hedley and Adam Watson (1984). The Expansion of international society. Oxford, Clarendon Press.
- Buzan, Barry (2001). "The English School: an underexploited resource in IR." Review of International Studies 27(3): 471-488.
- Byock, Jesse L. (1982). Feud in the Icelandic saga. Berkeley, University of California Press.
- Byock, Jesse L. (1990). Medieval Iceland: society, sagas, and power. Berkeley, Calif., University of California Press.
- Byock, Jesse L. (2001). Viking age Iceland. London, Penguin Books.
- Castells, Manuel (2000). The information age : economy, society and culture. Oxford, Blackwell.
- CDT (2000). ICANN's Global Elections: On the Internet, For the Internet, Center for Democracy and Technology.
<http://www.cdt.org/dns/icann/study/icannstudy.pdf> March.
- Clark, David D (1982). Request for Comment no. 814.
<http://www.faqs.org/rfcs/rfc814.html>.

- Colchester, Nico (2001). D-mark day dawns. Financial Times.
- Dahl, Robert A (1984). Modern Political Analysis. Englewood Cliffs NJ, Prentice-Hall.
- Dahl, Robert A. (1961). Who governs? democracy and power in an American city. New Haven, Conn., Yale University Press.
- Damgaard Petersen, Ib (1979). Kybernetiske systemers udviklingslove. København, Politiske studier.
- Davidson, James Dale and William Rees-Mogg (1997). The Sovereign Individual. London, Macmillan.
- DK-Hostmaster (2005). About DK Hostmaster. <http://www.dk-hostmaster.dk/index.php?id=130> 9 Oct.
- DoC (1998). Management of Internet Names and Addresses, US Department of Commerce
- DoC (2006). Joint Project Agreement. <http://www.icann.org/general/JPA-29sep06.pdf> National Telecommunications and Information Administration. <http://www.icann.org/general/white-paper-05jun98.htm>.
- DotDK (2008). dotDK Submission to IT og Telestyrelsen: the dotDK Proposal http://www.dotdk.org/webfm_send/11
- Duff, Andy (2002). A Proposal for More Realistic Domain Name Governance, new.net. http://www.new.net/WhitePaper_v2.pdf.
- Dunleavy, Patrick and Brendan O'Leary (1987). Theories of the state: the politics of liberal democracy. New York, New Amsterdam.
- Dunne, Timothy (1998). Inventing international society: a history of the English school. Houndmills, Macmillan in association with St. Antony's College Oxford.
- Dybkjær, Lone, Søren Christensen, et al. (1994). Info-samfundet år 2000: rapport fra udvalget om Informationssamfundet år 2000. København, Forskningsministeriet.
- Easton, David (1965). A systems analysis of political life. New York, Wiley.
- Economist, The (2007). Estonia has faced down Russian rioters. But its websites are still under attack. 10 May.
- EURID (2005). Timetable for launch. <http://www.eurid.eu/en/euDomainNames/timetableLaunch> 8 Oct.
- EURID (2008). Statistics. <http://www.eurid.eu/en/about/facts-figures/statistics> 23 Nov.
- Fortin, Ernest L. (1987). St. Thomas Aquinas. History of political philosophy. L. Strauss and J. Cropsey. Chicago, University of Chicago Press: 992 s.
- Fountain, Jane E. (1999). The virtual state: toward a theory of bureaucracy for the twenty-first century. Democracy.com? governance in a networked world. E. C. Kamarck and J. S. Nye. Hollis, NH, Hollis Pub.: 221.
- Friedman, David (1989). "Viking Iceland: Anarchy that Worked." Liberty 2(6): 37-40.
- Frissen, Paul (1997). The virtual state: Postmodernisation, informatisation and public administration. The governance of cyberspace: politics, technology and global restructuring. B. Loader. London; New York, Routledge: 111 - 125.
- Froomkin, Michael (2000). "Wrong Turn in Cyberspace: Using ICANN to Route Around the APA and the Constitution." Duke Law Journal 50(17): 17 - 184.
- Gibson, William (1984). Neuromancer. New York, Ace Books.
- Gillmor, Dan (2004). We the media. Grassroots journalism by the people, for the people. Sebastopol, CL, O'Reilly.

- Grotius, Hugo (1925). De jure belli ac pacis libri tres in quibus jus naturae & gentium. Jena.
- gTLD-MoU (1997). Memorandum of Understanding on the Generic Top Level Domain Name Space of the Internet Domain Name System, gTLD-MoU. <http://www.gtld-mou.org/gTLD-MoU.html> 28 Feb.
- G20 Summit (2008). Summit on Financial Markets and the World Economy. Fact Sheet. <http://www.whitehouse.gov/news/releases/2008/11/20081115-4.html>.
- Hall, Jim (2001). Online journalism: a critical primer. London, Pluto Press.
- Hallström, Olof and Patrik Lindén (2005). Demokratisträvan hotar internet [Yearning for democracy threatens the Internet]. http://www.svd.se/dynamiskt/brannpunkt/did_10649325.asp 29 Sept.
- Hauben, Michael and Ronda Hauben (1995). Netizens: On the History and Impact of Usenet and the Internet. <http://www.columbia.edu/~rh120/> 6 December.
- Hayek, F A (1945). "The use of knowledge in society." American Economic Review 35(4): 519-530.
- Hayek, Friedrich von (1937). "Economics and knowledge." Economica.
- Hayek, Friedrich von (1981). The Political Order of a Free People. Chicago IL, University of Chicago Press.
- Hobbes, Thomas (1968). Leviathan. London, Penguin Classics.
- Horvath, John (2000). Origin and Evolution of the Internet, Telepolis. <http://www.heise.de/tp/english/special/eco/6862/2.html> 8 Nov.
- Hurrell, Andrew (1990). "Kant and the Kantian paradigm in international relations." Review of International Studies 16: 183 - 205.
- IAHC (1997). Final Report of the International Ad Hoc Committee: Recommendations for Administration and Management of gTLDs, International Ad Hoc Committee. <http://www.iahc.org/draft-iahc-recommend-00.html> 4 Feb.
- ICANN (1998). IANA/NSI Draft New-IANA Bylaws. http://www.eff.org/Infrastructure/DNS_control/ICANN_IANA_IAHC/19980917_iana_nsi_bylaws.html.
- ICANN (2000a). Amended bylaws. <http://www.icann.org/general/archive-bylaws/bylaws-16jul00.htm#II>.
- ICANN (2000b). ICANN at-large membership registration.
- ICANN (2001). A Unique, Authoritative Root for the DNS. <http://www.icann.org/stockholm/unique-root-draft.htm>.
- ICANN (2003). ccNSO Formation: proposed Revisions to the Bylaws. <http://www.icann.org/montreal/ccnso-organization-topic.htm> 18 June 2003.
- icannwatch.com (2003). ICANN For Beginners. <http://www.icannwatch.com/icann4beginners.shtml> 17 Nov.
- International Herald Tribune (2008). Cyberwar and real war collide in Georgia 13 Aug.
- ITU (1997). Meeting on Changes to Internet Domain Name Structure Begins, International Telecommunications Union. <http://www.itu.int/newsarchive/projects/dns-meet/DNS-PressNote.html> 30 April 1997.
- Jackson, Robert H. (2000). The global covenant: human conduct in a world of states. Oxford; New York, Oxford University Press.
- Jackson, Ron (2004). "\$1.3 Million Sale of Men.com Signals Rebirth of the Premium Domain Market." Domain Name Journal.
- Johnson, Chalmers (1966). Revolutionary change. Boston, MA.

- Jones, Gwyneth (1997). The neuroscience of cyberspace: New metaphors for the self and its boundaries. The Governance of Cyberspace. B. D. Loader. London and New York, Routledge.
- Kane, Margaret (2002). The FBI's cybercrime battle. <http://news.com.com/2008-1082-937420.html>.
- Kant, Immanuel (1989). Zum Ewigen Frieden - ein Philosophischer Entwurf. Das Manifest für die Zukunft der Menchen. Munich, Scherz Verlag.
- Kelstrup, Morten and Michael C. Williams (2000). International relations theory and the politics of European integration: power, security, and community. London, Routledge.
- Keohane, Robert O. and Joseph S. Nye (1977). Power and interdependence: world politics in transition. Boston, Little Brown.
- Kirzner, Israel (1973). Competition and Entrepreneurship. Chicago, University of Chicago Press.
- Kur, Anette (2002). UDRP. Munich, Max-Planck-Institute for Foreign and International Patent, Copyright and Competition Law, Munich.
- Landweber, Larry, Brian E. Carpenter, et al. (1995). Proposal for an ISOC Role in DNS Name Space Management. <http://www.ksg.harvard.edu/iip/GIIconf/isoc.html>.
- Lardinois, Frederic (2008). Obama's Social Media Advantage. http://www.readwriteweb.com/archives/social_media_obama_mccain_comparison.php 23 Nov.
- LASC (2002). Ruling of the Supreme Court of Los Angeles. http://www.eff.org/Infra/DNS_control/ICANN_IANA_IAHC/Auerbach_v_ICANN/20020807_auerbach_judgment.pdf 5 Aug.
- Lasswell, Harold D. (1936). Politics: who gets what, when, how. New York, N.Y., Peter Smith.
- Lefebvre, Henri (1991). The production of space. Oxford, Blackwell.
- Lessig, Lawrence (1998). "Cyber-Governance." CPSR Newsletter - Computer Professionals for Social Responsibility 16(4).
- Licklider, Joseph C. R. (1960). "Man-Computer Symbiosis." IRE Transactions on Human Factors In Electronics HFE-1(March 1960): 4-11.
- Licklider, Joseph C. R. (1968). "The Computer as a Communication Device." International Science and Technology(April 1968).
- Locke, John (1993). Two treatises of government. London, Everyman Library, J M Dent.
- Long, Roderick T. (1993). "Virtual Cantons: A New Path to Freedom?" Formulations(1).
- Long, Roderick T. (1994). "The Decline and Fall of Private Law in Iceland." Formulations(3).
- Lundblad, Nicklas (2002). Det låsta nätet och anonymitetens fiender. Stockholm, Timbro.
- Lynn, Stuart (2003). President's Report: ICANN - The Case for Reform. <http://www.icann.org/general/lynn-reform-proposal-24feb02.htm> 24 Feb 2002.
- Madison, James, John Jay, et al. (1987). The Federalist papers. Harmondsworth, Penguin.

- Marwan, Radwan M. (2005). Inter IKEA Systems B.V. v. JOHN JONES, Palestinian National Internet Naming Authority. <http://www.nic.ps/pscse/IKEA-PS.pdf> 17 December.
- Menger, Carl (1976). Principles of Economics. New York NY, New York University Press.
- Mill, John Stuart and Gertrude Himmelfarb (1974). On liberty. London, Penguin.
- Mises, Ludwig von (1963). Human Action. New Haven, Yale University Press.
- Mockapetris, P (1983a). Domain names: Concepts and facilities. <http://www.faqs.org/rfcs/rfc882.html>.
- Mockapetris, P (1983b). Domain names: Implementation specification. <http://www.faqs.org/rfcs/rfc883.html>.
- Montesquieu, Charles de Secondat, Anne M. Cohler, et al. (1989). The spirit of the laws. Cambridge, Cambridge University Press.
- Mooney, Stephen C. (1996). The Nation-state to Cyberstate: Information Technology and the Triumph of the Commercial Ethic. London, Libertarian Alliance.
- Mosk, Matthew and Sarah Cohen (2008). Big Donors Drive Obama's Money Edge. http://www.washingtonpost.com/wp-dyn/content/article/2008/10/21/AR2008102102996_pf.html.
- Mueller, Milton (2002). Ruling the root: Internet governance and the taming of cyberspace. Cambridge, Mass., MIT Press.
- NATO (2008). NATO opens new centre of excellence on cyber defence.
- Nelson, Michael R. (2005). Speech by Michael R. Nelson. Internet Standards, Internet Policy, and Internet Governance - Yesterday, Today, and Tomorrow.
- Nelson, Ted H. (1967). Getting it out of our system. Information retrieval: a critical view: based on Third Annual National Colloquium. G. Schechter. Washington D.C., Thompson Book Company: 191-210.
- Netcraft (2005). Web server survey. http://news.netcraft.com/archives/web_server_survey.html 7 Oct.
- Netcraft (2008). Web server survey. http://news.netcraft.com/archives/2008/11/19/november_2008_web_server_survey.html 22 Nov.
- Netratings (2005). Global Internet Ratings. <http://www.netratings.com/> 7 Oct.
- Norris, Pippa (1999). Who surfs? New technology, old voters & virtual democracy. Democracy.com? governance in a networked world. E. C. Kamarck and J. S. Nye. Hollis, NH, Hollis Pub.: 221.
- NTIA (2005). Domain Names: Management of Internet Names and Addresses. <http://www.ntia.doc.gov/ntiahome/domainname/background.htm> 8 Oct.
- nunames.nu (2002). Nu Domain Magazine. <http://www.nunames.nu> April.
- Nye, Joseph S. (1999). Information Technology and Democratic Governance. Democracy.com? governance in a networked world. E. C. Kamarck and J. S. Nye. Hollis, NH, Hollis Pub.: 221.
- Peppard, Joe, Ed. (1993). IT strategy for business. London, Pitman.
- Pool, Ithiel de Sola (1983). Technologies of freedom. Cambridge, Mass., Belknap Press.
- Popper, Karl (1957). The Unity of Method. The Poverty of Historicism. London, Routledge and Kegan Paul.
- Postel, Jon (1981). Request for Comment no. 790. <http://www.faqs.org/rfcs/rfc790.html>.

- Postel, Jon (1981). Request for Comment no. 791.
<http://www.faqs.org/rfcs/rfc791.html>.
- Postel, Jon (1983). Domain names plan and schedule.
<http://www.faqs.org/rfcs/rfc881.html>.
- Postel, Jon (1994). Domain Name System Structure and Delegation.
<http://www.faqs.org/rfcs/rfc1591.html>.
- Postel, Jon and J Reynolds (1984). Domain requirements.
<http://www.faqs.org/rfcs/rfc920.html>.
- Rasmussen, Terje (2002). Nettmedier: journalistikk og medier på internett. Bergen, Fagbokforlaget.
- Reekee, W Duncan (1984). Markets, Entrepreneurs and Liberty: An Austrian View of Capitalism. New York, St Martin's Press.
- Reynolds, J and S Ginoza (2004). Internet Official Protocol Standards.
<http://www.faqs.org/rfcs/rfc3700.html>.
- Rheingold, Howard (1994). The Virtual Community: Finding Connection in a Computerized World. London, Minerva.
- Rice, Condoleezza and Carlos M. Guterrez (2005). Letter regarding the upcoming World Summit on the Information Society. S. o. S. f. F. a. C. A. Jack Straw.
- Riker, William H (1982). Liberalism against Populism. San Francisco, CA, W H Freeman & Co.
- Robbins, Lionel (1935). The Nature and Significance of Economic Science. London, Macmillan.
- Rothbard, Murray N (1993). Man, Economy, and State. Auburn, Ludwig von Mises Institute, Auburn University.
- Saco, Diana (2002). Cybering democracy : public space and the Internet. Minneapolis ; London, University of Minnesota Press.
- Sciabarra, Chris Matthew (1995). Marx, Hayek, and utopia. Albany, State University of New York Press.
- Siebert, Fredrick Seaton (1956). Four theories of the press. Urbana, University of Illinois Press.
- Singer, Jane B. (1997). "Still Guarding the Gate? The Newspaper Journalist's Role in an On-line World." Convergence 3(1): 72-89.
- Solvason, Birgir T. Runolfsson (1992). Ordered anarchy: evolution of the decentralized legal order in the Icelandic Commonwealth. Reykjavík, University of Iceland Faculty of Economics and Business Administration.
- Strange, Susan (1999). "The Westfailure System." Review of International Studies 25(3): 345-354.
- Tarjanne, Pekka (1997). Internet Governance: Towards voluntary multilateralism, ITU. <http://www.itu.int/newsarchive/projects/dns-meet/KeynoteAddress.html> 29 Apr.
- Taylor, Peter J. (1996). The Modern Multiplicity of States. Globalization: Theory and Practice. E. Kofman and G. Youngs. London, Pinter.
- Tocqueville, Alexis de and J. P. Mayer (1969). Democracy in America. Garden City, N.Y., Anchor Books.
- Tuck, Richard (1979). Natural rights theories: their origin and development. Cambridge, Cambridge University Press.
- Waltz, Kenneth N. (2001). Man, the state, and war; a theoretical analysis. New York, Columbia University Press.
- Watson, Adam (1992). The Evolution of International Society. London, Routledge.

- Wendt, Alexander (1994). "Collective identity formation and the international state." American Political Science Review 88(2 (June 1994)): 384-396.
- Wight, Martin (1987). "An anatomy of international thought." Review of International Studies 13: 221 - 7.
- Wight, Martin (1991). International Theory and the Three Traditions. London, Leicester University Press.
- Williams, Frances (2005). US unmoved on control of web address system 1 Oct.
- Williams, Howard L1 (1986). Kant's political philosophy. New York, St. Martin's Press.
- Wired (1998). Wired News Story: Blunting a 21st Century Attack. <http://www.wired.com/news/politics/0,1283,12481,00.html> 1 Dec 2003.
- Wood, Nick (2002). The name game, [http://www.cpaglobal.com/website/cpaglobal.nsf/Content/NewsletterIssue02/\\$file/IP%20review.pdf](http://www.cpaglobal.com/website/cpaglobal.nsf/Content/NewsletterIssue02/$file/IP%20review.pdf). IP Review: 5.
- Worldsummit (2003). ICANN or ITU? Civil Society debates Internet Governance, Heinrich-Böll Foundation. <http://www.worldsummit2003.de/en/web/401.htm> 24 Nov 2003.
- Zimmermann, Phil (1999). Why I Wrote PGP. <http://www.philzimmermann.com/essays-WhyIWrotePGP.shtml> 25 Nov 2003.
- Zooknik (2005). History of gTLD domain name growth. <http://www.zooknic.com/Domains/counts.html> 7 Oct.

Appendix: Glossary of acronyms and terms

ANSI	American National Standards Institute. An NGO that coordinates and approves voluntary US standards. Official US representative in international standards organisations.
ARPA	Advanced Research Projects Agency. Manages and directs selected basic and applied research and development projects for the US Department of Defense.
ARPANET	Precursor to the Internet. A large wide-area network that was created in 1969 and served as a testbed for new networking technologies.
CCITT	The Consultative Committee on International Telegraphy and Telephony, a sub-committee of the ITU
CERN	European Organization for Nuclear Research, the world's largest particle physics laboratory, situated west of Geneva. Known for being the birthplace of the World Wide Web under the direction of Tim Berners-Lee.
CORE	Council of registrars. Initiative by the IAHD to administer domain names under the auspices of the ITU .
cybersquatting	The practice of registering domain names that use the names of existing businesses, often with the intent to sell the names to those businesses.
DDN	A domain name introduced by Jon Postel in November 1983 (<i>.ddn</i>) to work in addition to the existing <i>.arpa</i> domain.
DIFO	Dansk Internet Forum (Danish Internet Forum). An association owning DK-Hostmaster, the Danish domain name administrator.
DNS	Domain Name System
domain name	Unique identifier of a computer on the internet, e.g. <i>ku.dk</i> . Domain names are read from right to left, so that <i>.dk</i> is the top-level domain, <i>ku</i> is the second-level domain etc. Corresponds to an IP number .
DOS	Denial of Service attack. Making a computer resource unavailable to its intended users by taking up its communication capacity.
EFF	Electronic Frontier Foundation. A US non-profit organisation formed by lawyers and technologists to ensure individual rights of netizens and advocate the absence of government intervention on the Internet.

Grid	Grid.org is a project to carry out single destination large-scale research projects powered by 2 million worldwide computers that act as one super-computer.
gTLD	generic Top Level Domain (see TLD). A TLD intended for use internationally, as opposed to Country Code TLDs , that are geographic, e.g. <i>.dk</i> for Denmark.
IAB	Internet Architecture Board. A failed attempt to formalise the running of the Internet, in 1992, outside US government control.
IAHD	International Ad Hoc Committee. Formed in 1996 by ISOC and other parties to transfer control of the Root file to an international agency. Established CORE .
IANA	Internet Assigned Numbers Authority. A committee set up by Jon Postel in 1994 to coordinate and manage the DNS . Its functions taken over by ICANN in 1998.
ICANN	Internet Corporation for Assigned Names and Numbers. Established in 1998 by the US Department of Commerce to take over the management of the Internet from existing institutions such as IANA and the Internet Society (ISOC).
ICT	information and communication technologies
IESG	Internet Engineering Steering Group. A network of designers, operators, vendors and researchers concerned with the evolution of Internet architecture. Later renamed IETF .
IETF	New name for the Internet Engineering Steering Group (IESG).
IGO	international government organisation
Internet Society	A private, non-profit organisation founded in 1992 to insure members engaged in IESG
IP number	Unique identifier of a computer on the internet, e.g. 130.225.126.134. Can be replaced by a domain name, e.g. <i>ku.dk</i>
IP	internet protocol
IS	information system: the flow of information in an organisation and between organisations, enabled by IT .
ISO	International Standardization Organization. A non-governmental network of the national standards institutes of 156 countries, with a Central Secretariat in Geneva.

ISOC	Internet Society. Established in 1992 as an international organisation for global coordination and cooperation on the Internet. Formed the IAHD .
IT	information technology: the enabling mechanism – or technical perspective - of IS .
ITU	International Telecommunications Union. Established in Paris in 1865 to administer the first International Telegraph Convention signed by the 20 founding members. Became a specialised United Nations agency in October 1947.
netizen	citizen of the Internet community
NGO	non-governmental organisation
NIC	Network Information Centre
packet-switching	Refers to protocols in which messages are divided into packets before they are sent. Each packet is then transmitted individually and can even follow different routes to its destination.
Root file	The single data file at Herndon, Virginia, that contains the domain names and routing for traffic on the (official) internet.
splinternet	An alternative internet, not included in the Root file , but using existing technical standards and conventions to ensure compatibility between computers and networks.
TCP/IP	Transmission control protocol/internet protocol. A common language used primarily to connect dissimilar networks to each other.
TLD	Top-level domain. Domain names are read from right to left, so that in the example <code>www.ku.dk</code> , <code>.dk</code> is the top-level domain, <code>ku</code> is the second-level domain name, and <code>www</code> is a third-level domain name.
UDRP	Uniform Dispute Resolution Policy. A procedure introduced by ICANN in 1999 to settle conflicts between domain name registrants.
W3C	World Wide Web Consortium. A collaboration project between MIT and CERN . Publishes technical specifications that allow for a smooth running of the World Wide Web.
WIPO	World Intellectual Property Organization. Established in 1967 and became a United Nations specialised agency in 1974. One of the four original arbitrator service accredited by ICANN to settle conflicts between domain name registrants.
X-25	A popular standard for packet-switching networks. The X.25 standard was approved by the CCITT (now the ITU) in 1976.