Hybrid net: the regulatory framework of ICANN and the DNS

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Abstract

The Internet Corporation for Assigned Names and Numbers (ICANN) is responsible for the management and coordination of the internet domain name and address space, which are critical resources necessary for internet connectivity. Though international in reach since it cooperates with persons, organizations and governments in many countries, ICANN was set up as a private non-profit organization under California law. This article examines the role, legal nature and basis of ICANN and the domain name system (DNS). It first maps and analyses the various regulatory instruments underlying ICANN and the DNS. What emerges is that, very often several and different modes of regulation, both formal and informal, are required to address a particular issue satisfactorily. The article examines whether and to what extent these different types of instruments co-exist and interrelate as one coherent regulatory framework. To do so, this article draws upon Teubner’s notion of hybrid networks and makes an analogy with modern theories on how various sources of law apply within a legal system. In particular, it follows and builds upon Ost and van de Kerchove’s notion of network or ‘mesh’ regulation. To explain the contractual web at the heart

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of the gTLD namespace, Cafaggi’s notion of contractual networks is utilized.

Keywords: internet governance; domain names; regulation; mesh; ICANN; contractual network

1. Introduction: ICANN and the DNS

The Internet Corporation for Assigned Names and Numbers (ICANN) is one of the governors of the internet. It is tasked with ‘inter alia’ the management and coordination of the Domain Name System (DNS) and, through its so-called IANA functions, it is responsible for the root zone management for the DNS and the global coordination of the Internet Protocol (IP) address space. As DeNardis explains, the internet domain name space and the internet address space are ‘critical’ resources for internet connectivity, with the DNS ‘translating between alphanumeric domain names and their associated numerical IP addresses necessary for routing information across the Internet’.

In view of the critical nature of these resources, the role, legal nature and basis of the organization tasked with their management and co-ordination—ICANN—is significant. ICANN is a private law organization set up in 1998 as a non-profit public benefit corporation under Californian law. It is not an international organization set up under public international law. However, it is international in the sense that its Articles of Incorporation and Bylaws mandate cooperation with organizations and persons in many countries as well as governments. ICANN is a creature of private law although it was originally set up by an agreement with the US Department of Commerce (DOC). Yet the picture is more complex than that. As this article shows, an elaborate web of contracts and more informal documents underlie ICANN’s set-up and the relations with the various private entities and national authorities with which it deals. This complexity extends to the regulation of the DNS where a variety of regulatory instruments—contractual and statutory, formal and informal, legal and non-legal—are used.

One question that arises is how do these various instruments operate together. Another question is whether they can be read together as a

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1 There are several others bodies such as the Internet Society (ISOC), the Internet Engineering Task Force (IETF), the Internet Architecture Board (IAB), the Internet Engineering Steering Group (IESG), the Internet Research Task Force (IRTF), the World Wide Web Consortium (W3C) and the Internet Assigned Numbers Authority (IANA). See further LA Bygrave and T Michaelsen, ‘Governors of the Internet’ in LA Bygrave and J Bing (eds), Internet Governance: Infrastructure and Institutions (OUP 2009) 95–114.

2 ICANN carries out the IANA functions under contract with the US Department of Commerce. See <http://www.ntia.doc.gov/page/iana-functions-purchase-order>. See further <http://www.icann.org/>. Unless otherwise stated, references to the law and to URLs are as of 15 November 2013.


4 See, especially, art 4 of ICANN’s Articles of Incorporation and art 1 of the Bylaws.
coherent legal framework. To answer these questions, this article draws an analogy with modern theories on how various sources of law apply within a legal system. In particular, it builds upon Ost and van de Kerchove’s notion of network or ‘mesh’ regulation. In order to do this, the main regulatory instruments of ICANN and the DNS are first identified. In order to understand the private ordering of ICANN, it bears highlighting that it is not enough to examine the corporation’s formal organization as a private law foundation under Californian law; account must also be taken of its external relations with private actors such as registrars and registries as well as various public law actors such as the US government and the many national authorities with whom an elaborate network of formal and informal arrangements has gradually been built. Indeed, ICANN’s regulatory framework has been described as an example of ‘self-constitutionalization without a state’.

To understand the role, legal nature and basis of ICANN, this article starts by mapping and analysing the various regulatory instruments underlying it (Section 2) and the DNS which it is tasked to co-ordinate (Section 3). The type of instrument used and the extent to which it is binding is also examined. To explain the contractual web at the heart of the gTLD namespace, Cafaggi’s notion of contractual networks is utilized. The article then discusses the question of whether and to what extent these different types of instruments co-exist and interrelate as one coherent regulatory framework. It does so by drawing first upon Teubner’s notion of hybrid networks (Section 4) and then upon Ost and van de Kerchove’s theory of network or mesh regulation (Section 5).

2. The first strands of the net: legal basis and structure of ICANN

An intricate web of contracts and more informal agreements underlie ICANN’s set-up and the relations with the various entities with which it deals. Put briefly, ICANN was set up in response to a call by the US DOC for a new entity to assume the primary responsibility for the management of internet names and addresses. This was done through a Memorandum of Understanding (MOU) between ICANN and the DOC which was subsequently amended six times, replaced by a Joint Project Agreement in 2006 and, upon its expiry, by an Affirmation of Commitments (AOC) in 2009.

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5 F Ost and M van de Kerchove, De la pyramide au réseau? Pour une théorie dialectique du droit (Facultés Universitaires Saint-Louis Bruxelles 2002).
6 This is also the view of Teubner. See G Teubner, ‘Constitutionalising Polycontexturality’ (2011) 20 Soc Legal Stud 210, 222.
7 ibid 220.
8 See Section 3.2.
The judicial enforceability of the AOC has been described as dubious with at least two scholars claiming that it is probably not a valid contract.\textsuperscript{11} Besides the AOC, the legal basis of the ICANN–DOC relationship today rests on another agreement: that for the performance of the IANA functions described earlier. ICANN took over the IANA functions from the University of Southern California (USC), which had been operating IANA as a research project, through a so-called ‘Transition Agreement’ between ICANN and the USC in 1998.\textsuperscript{12} It should be noted that originally, there was a third agreement on which the legal basis of ICANN–DOC rested, namely, the Cooperative Research and Development Agreement (CRADA) on the security and robustness of the DNS root server,—which agreement has since lapsed.\textsuperscript{13}

Another document worth noting is the MOU Concerning the Technical Work of IANA between ICANN and the IETF signed on 1 March 2000 and since supplemented by several Supplement Agreements. The IETF is the principal body engaged in the development of new internet standard specifications. The status of the MOU may at first appear unclear as it seems to lay down obligations solely for IANA/ICANN, raising the doubt whether it is a valid contract since there is no element of exchange.\textsuperscript{14} However, a closer reading of Section 4.1 reveals that for IANA to assign and register the IPs and parameters, it needs to follow the criteria and procedures of the documents drawn up and specified by the IETF (RFCs,\textsuperscript{15} Proposed and Internet Standards, etc). That section leaves open the possibility for the development (by the IETF) of further criteria and procedures to be adopted by IANA when so instructed by the Internet Engineering Steering Group, a management committee of the IETF. The argument could thus be made that for IANA to continue performing its undertakings in Section 4.1, the IETF must continue with the production of standards and the development of any missing criteria and procedures over time. In fact, the subsequent supplemental agreements specifically and, very often, in meticulous detail, specify other criteria and procedures that were since developed by IANA and the IETF. The element of consideration is thus present and the MOU is a valid contract.

\textsuperscript{11} Froomkin claims the AOC is probably not a valid contract because of lack of consideration. See AM Froomkin, ‘Almost free: An analysis of ICANN’s “Affirmation of Commitments”’ (2011) 9 JTHTL 187, 199–203. Bygrave queries this claim but notes other problems with the AOC, namely (i) the lack of clear statutory authority enabling the DOC to bind itself and (ii) the AOC’s ‘probable lack of mutual enforceability given the vagueness of much of what each party promises’. See LA Bygrave, ‘Contract Versus Statute in Internet Governance’ in I Brown (ed), Research Handbook on Governance of the Internet (Edward Elgar Publishing 2013) 168, 176–77.

\textsuperscript{12} See <http://www.icann.org/en/about/agreements/usc-icann-transition>.

\textsuperscript{13} See art 11.11 which linked the duration of CRADA to the terms of the Statement of Work which lapsed on 30 June 2002. See ‘Amendment 2’ at <http://www.icann.org/en/about/agreements>.

\textsuperscript{14} In common law, a promise will not be enforceable unless it is supported by consideration. Thus, for a promise (offer) to be legally binding, it must seek something (or some action) in return (\textit{quid pro quo}).

\textsuperscript{15} A Request for Comments (RFC) is a document which describes technical or organizational information about the internet, and include the technical specifications and policy documents produced by the IETF.
Though ICANN’s ties with the US government are due to the history of the internet—the internet was after all born in the USA and that is also where the DNS was first devised— the links with the USA are more than just historical. The first three aforementioned legal documents require ICANN to maintain the control of its operations physically in the USA. CRADA gave the DOC the right to terminate the contract if ‘direct or indirect control’ of ICANN was ‘transferred to a foreign company or government’. The latest IANA Contract goes even further and requires that ICANN shall be a wholly US-owned firm operating, incorporated and organized under US law. It also specifies that the primary IANA functions are to be performed in the USA, and that ICANN, as contractor, shall maintain, throughout the performance of the contract, a physical address in the USA. Moreover, all primary obligations and systems must remain within the USA.

Similarly, in the AOC, one of ICANN’s affirmations is to remain a non-profit corporation headquartered in the USA though the same clause also seeks to counteract the impact of this by stating that ‘ICANN is a private organization and nothing in this Affirmation should be construed as control by any one entity’. Through these provisions, I would argue, the US government wants to ensure that it maintains jurisdictional control and, more importantly, enforcement ability over ICANN. In other words, the fact that ICANN has a physical presence and carries out its main business operations in the USA in effect means that the DOC may easily take action through the US court system and enforce any court judgment or injunctions on ICANN.

Besides the abovementioned four documents, there are also ICANN’s constitutive documents, that is, ICANN’s Articles of Incorporation and its Bylaws. These two documents were attached to the original MOU between ICANN and the DOC and also the AOC, though the Bylaws have been amended since then. The Bylaws contain detailed rules on ICANN’s mission and core values and the composition of its Board. They also set up the various supporting organizations such as the country-code names supporting organization (ccNSO), the generic name supporting organization (GNSO), advisory committees and the nominating committee.

ICANN’s key internal documents also include two soft-law instruments: ICANN’s Code of Conduct for voting and non-voting Board members, as

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16 This was the brainchild of Jon Postel, Paul Mockapetris and Craig Partridge. See further J Bing ‘Building Cyberspace: A Brief History of the Internet’ in LA Bygrave and J Bing (eds), Internet Governance: Infrastructure and Institutions (OUP 2009) 8, 35.
17 See art 8.2.
18 This came into effect on 1 October, 2012. See further K McGillivray, ‘Give It Away Now? The Future Role of the IANA Functions Contract in Internet Governance’ in this volume.
19 See Clause C.2.1.
20 See, in particular, Affirmation 8(b).
21 The latest amendment to the Bylaws was on 11 April 2013. See <http://www.icann.org/en/about/governance/bylaws#I>.
well as ICANN’s Conflict of Interest Policy.\textsuperscript{22} The latter is directed at officers, directors, board liaison and key employees of ICANN.

3. Further strands: structure of the DNS

3.1 – The domain namespace

As stated in the introduction, within ICANN’s IANA remit is the coordination of the DNS with the main objective being to ensure that every internet address is unique and that the users of the internet can find all valid addresses. A domain name is a unique identifier for an IP address or number in a mnemonic form. There are two categories of top-level domain names: generic top-level domains (gTLDs)\textsuperscript{23} and the set of two letter country code top-level domains (ccTLDs). The initial general framework of the DNS system structure and delegation was documented by Jon Postel in RFC 1591.\textsuperscript{24} Since May 1999, ICANN/IANA follows ICP-1: Internet DNS Structure and Delegation which lays down IANA’s current practices in administering ‘inter alia’ RFC 1591.

With the opening of the top-level domain in the new gTLD program, 1930 applications for new gTLDs were filed in spring 2012. Since November 2009, ccTLDs may apply for Internationalized Domain Names (IDNs) in scripts other than US-ASCII.\textsuperscript{25} The new gTLD program also allows for the first time the addition of IDN gTLDs into the root zone.\textsuperscript{26}

3.2 – Contractual network of the gTLD namespace

Governance of the gTLD namespace is contractual, with a web of contracts spun between, respectively, ICANN, registries, registrars, data escrow providers and eventually between the registrants and the registrars with which they deal. The management of the ccTLD varies with some countries having opted for a formal contractual arrangement with ICANN while others have preferred an informal arrangement. Some countries also have statutory regulation of their ccTLD. The regulatory framework of the gTLD and the ccTLD namespace are examined in more detail in this section and the next.

\textsuperscript{22} These are available at, respectively, \url{<http://www.icann.org/en/groups/board/governance/code-of-conduct>} and \url{<http://www.icann.org/en/news/announcements/announcement-315may12-en.htm>}.\textsuperscript{23} As at 8 October 2013, there are 60 in ASCII (the American Standard Code for Information Interchange—ASCII—is a character-encoding scheme originally based on the English alphabet). See \url{<http://www.icann.org/en/about/agreements/registries>}.\textsuperscript{24} On RFC 1591, L Bygrave, S Schiavetta, H Thunem, AB Lange and E Phillips, ‘The Naming Game: Governance of the Domain Name System’ in L Bygrave and J Bing, Internet Governance: Infrastructure and Institutions (OUP 2009) 158, 186–87.\textsuperscript{25} See further \url{<http://www.icann.org/en/resources/idn>}.\textsuperscript{26} See further \url{<http://www.icann.org/en/resources/idn/fast-track/string-evaluation-completion>}.
ICANN uses a portfolio of contracts in the governance of the gTLD. An analysis of ICANN’s gTLD agreements shows that ICANN tends to use a standard-format set of agreements which varies depending on whether the registry is sponsored\(^{27}\) or not. This use of a standard format applies also to the new gTLD Registry Agreement (RA) published in July 2013 with regards to the new gTLDs to be approved under the new gTLD program. One advantage of this is that it makes for easier compliance management by ICANN of all these intertwined agreements. The RAs under the old system contain as one of their appendices a standard format Registry–Registrar agreement (RRA) which the registry is bound (through a clause in the ICANN-RA) to use with its registrars. An important clause of the RRA is the obligation on the registrar to follow ICANN’s dispute resolution policy. The new gTLD RA does not contain a draft of such standard contract but contains a clause mandating the Registry to use a uniform non-discriminatory agreement with all accredited registrars, such agreement to also be known as the RRA. Every gTLD registry must additionally enter into a Registry Data Escrow Agreement with ICANN and a third-party data escrow provider (see Figure 2).

ICANN also has a contractual relationship with the (second-level) gTLD registrars through its registrar accreditation system and the use of a Registrar Accreditation Agreement (RAA) (see Figure 4). This is the case both under the old system and in the case of new gTLDs to be delegated under the new programme where a new RRA was approved in June 2013. In its turn, the standard RRA in the old system and the new gTLD RA both contain various obligations on the registrar with regards to its relationship with those wishing to register a second-level or third-level domain name (known as registrants). A prospective registrar must also undertake to submit an electronic copy of their registration database to ICANN or else to an ICANN-approved third-party data escrow provider.\(^{28}\)

The above discussion clearly shows that there is a network of contracts between ICANN, a gTLD registry, its registrar and each of the latter’s registrants. The situation is likely to get even more complex because in the case of the (currently pending) new gTLDs, the gTLD Applicant Guidebook allows ICANN-accredited registrars to apply for a gTLD, subject to certain requirements and restrictions.\(^{29}\) Thus cross-ownership

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\(^{27}\) Sponsored TLDs are set up for use by a particular community or industry such as .cat (for the Catalan linguistic and cultural community on the internet) and .mobi (for users and producers of mobile telecommunications services).


\(^{29}\) ICANN may refer an application to a competition authority where the registry-registrar cross-ownership arrangements raise competition issues—see Applicant Guidebook version of 4 June 2012, Module 1 s 1.2.1 on ‘Registrar cross-ownership’; and Module 5 s 5.1 on ‘Registry Agreement’ at [http://newgtlds.icann.org/en/applicants/agb](http://newgtlds.icann.org/en/applicants/agb).
between registries and registrars will thus be possible under the new gTLD regime.\(^{30}\)

In addition, the ICANN-RA contains, ‘inter alia’, as an appendix: (i) a standard draft of a Zone File Access Agreement that a Registry must enter into with any third-party requesting zone file access; and (ii) a service-level agreement or a description of the functional and performance specifications which the Registry undertakes to uphold. Registries for gTLDs maintain DNS zone files that contain resource records for the domain names that are active within those gTLDs. There is not merely a ‘web of contracts’ in the sense of a set of loosely related contracts between various actors (such as registries, registrars, escrow providers) and ICANN to regulate the gTLD namespace. Some parts of this web actually form a ‘contractual network’. As Cafaggi observes, ‘it is not sufficient to have a multiplicity of linked contracts for a contractual network to emerge’.\(^{31}\) More is required:

there has to be (1) a strong collective interest to pursue (2) a common objective, and (3) a high level of interdependence among the contracts and the activities performed through contracts.\(^{32}\)

One utility of contractual network theory is that it helps elucidate how contracts are interlinked and hence, whether and the extent to which one can make cross-references between such contracts to assist in their interpretation. Another utility is that it helps address doctrinal difficulties created by the notion of privity of contract\(^{33}\) or, as it is known in civil law jurisdictions, the relativity of contracts.\(^{34}\) The doctrine of privity appears to be a major stumbling block to recognizing rights for parties in other linked contracts but who are, technically speaking, extraneous to the bilateral contract that has been breached. A typical example of such an extraneous party would be the registrant vis-à-vis an ICANN-RA.

In effect, the backbone of the DNS is made up of a set of interdependent, bilateral linked contracts. With respect to each respective gTLD, due to the

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\(^{30}\) Current gTLD registry agreements prohibit registries from acquiring directly or indirectly more than 15% of a registrar—see ‘New gTLD Program Explanatory Memorandum: Registry-Registrar Separation’ of February 2009, ch 2 at <https://archive.icann.org/en/topics/newgtds/regy-regr-separation-18feb09-en.pdf>.


\(^{32}\) Cafaggi (n 31) 74.

\(^{33}\) Briefly stated, contractual privity means that contracts are binding only between the parties thereto and cannot be enforced either by or against third parties. However, the Contracts (Rights of Third Parties) Act 1999 introduced an exception to this doctrine in English law such that a third party may acquire enforceable rights under a contract if, and to the extent that, the parties to the contract so intend. See HG Beale (gen ed), Chitty on Contracts - Vol 1: General Principles (including 3rd cumulative supplement of 2011, 30th edn, Sweet & Maxwell 2008) para 18–001. Similarly, most civil-law jurisdictions recognize so-called contracts for the benefit of a third party. See eg BS Markesinis, H Unberath and A Johnston, The German Law of Contract: A Comparative Treatise (2nd edn, Hart Publishing 2006) 186–203.

\(^{34}\) See eg art 1165, French Civil Code. This is also the main rule in Norway – see Rt 1997 p 1322 referred in G Woxholth, Avtalerett (8th edn, Gyldendal Akademisk 2012) 167.
tree-like structure of the DNS, there is a vertical linked contractual network between the ICANN-RA, RRA and the registration agreement between the registrar and registrant as Figure 1 shows.

However, the contractual network is more complex than this, with at least 35 two other sub-networks linked to the vertical bilaterally-linked contractual network:

(i) The contractual network between ICANN, the registry and the escrow agent which comprises the ICANN-RA and ICANN’s third-party registry data escrow agreement (Figure 2).

(ii) A mirror contractual network to that in (i) above between ICANN, the registrar and the escrow agent (Figure 3).

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**Figure 1. Vertical bilaterally-linked contractual network**

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**Figure 2. Sub-contractual network between ICANN, Registry and Escrow Agent**

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35 The contractual web becomes more complex in those cases where a registrar has entered into a registrar reseller agreement with a reseller(s) with respect to the resale of domain names to and from registrants.
When the sub-contractual networks in Figures 2 and 3 are combined, a more complex contractual network is observed between ICANN, the Registry, the Registrar and the Escrow Agent contractual network. Besides the RA, the RAA and the two escrow agreements, Figure 4 also shows another agreement: the RRA shown in Figure 1.

All the three elements of a contractual network identified by Cafaggi, namely (i) a strong collective interest, (ii) a common objective and (iii) a
high level of interdependence, are met in the case of each respective gTLD. There is a strong collective interest of all the various contractual parties to pursue the common objective of regulating and operating the respective gTLD in a manner which works, observing the tree-like structure of the TLD (here the relevant parties are ICANN, the registry, the registrar and the registrant) and ensuring security of the registration data (here the relevant parties are ICANN, the registry, the registrar and the third-party escrow agent). To achieve (i) and (ii) aforementioned, there is a high level of interdependence between the various contracts and the activities performed under such contracts, as discussed above and as Figures 1–4 illustrate. The existence of these contractual networks in Cafaggi’s sense implies that the contracts forming a contractual network could be read together to give coherence to the underlying legal framework such as, for example, to understand the extent of a party’s obligations.

Moreover, a strong argument can be made that there is also a contractual network for the entire gTLD namespace or, perhaps more precisely, there are two contractual webs: (i) the contractual web for the gTLDs issued under the old system (ie not including the new gTLD program), and (ii) the contractual web for the new gTLDs under the new program. This makes for a multifaceted regulatory structure. However, it also highlights the significant help that contractual network theory as proposed by Cafaggi provides in trying to seek coherence in this web.

From the above it is clear that the preferred regulatory tool for the gTLD namespace is contract. This massive reliance on contract, with ICANN being the focal node of the network, shows the growing influence of ICANN as the principal and dominant actor in the regulation of the gTLD namespace. ICANN is indeed the protagonist here: it is the main drafter of the regulatory mechanisms, that is, of the various contracts used in this web. Not only that, but also all of the other actors—whether offering services in the gTLD namespace (eg registries, registrars) or wanting to register a gTLD (ie registrants)—do not have much option but to accept such terms with little leeway, if any, should they want to operate in the gTLD namespace.

3.3 – The ccTLD namespace

Historically the delegation of ccTLDs has been informal, with several ccTLDs delegated by Jon Postel without any formal agreement. ICANN has formalized relationships with a few ccTLD managers (eg .au, .jp and .ke) through formal ‘Sponsorship Agreements’.

After considering the ‘Guidelines for ccTLD managers Accountability Framework discussions with ICANN’ developed by the ccNSO, ICANN has sought to document its existing relationship with ccTLDs through the use of either of two mechanisms, in the absence of a formal agreement.36 One
option is an Accountability Framework document which not only contains clauses stating the obligations of a ccTLD manager and ICANN, but is also meant to cover dispute resolution and termination. It was designed ‘to cater to those ccTLD managers who require a more “formal” document with ICANN’.

In actual fact, although it is also meant to cover dispute resolution, some of the ccTLDs chose not to include such a clause in their Accountability Framework.

The other option is the use of an exchange of letters which has even less formal language than the Accountability Framework. The legal enforceability of such letters is dubious, to say the least. In fact, several exchanges of letters contain a clause stating that the letters ‘will not form the basis for any claim for any legal or equitable relief, or create reliance on the part of either party’ and that ‘nothing contained in this letter shall give rise to any liability, monetary or otherwise’ by one party towards the other. Such clauses appear, for example, in the exchange of letters between ICANN and the ccTLD manager of, respectively, Norway, the UK, Luxembourg, Austria and Brazil.

Other countries have variants of this clause but the main thrust of such exchange of letters seems to be their declaratory and informal nature. Clauses like the abovementioned make it clear that the parties have no intention to be legally bound and hence such letters are not contractually binding.

Though not as informal as the exchange of letters, the legal bite of the Accountability Framework is rather weak as it also contains, as one of its standard clauses a ‘no monetary liability’ clause similar to the one found in the exchange of letters. Moreover, as abovementioned, in the case of countries that have opted out of having a dispute resolution clause, a further clause was added to emphasize that it was not the intention of the parties to use litigation as a form of dispute resolution and that the parties are to use their best endeavours to resolve any dispute.

Many ccTLD managers have opted for either of the abovementioned two informal mechanisms. This is evidence of their reluctance to have a formal, legally binding contract with ICANN regarding their management of the ccTLD. What most ccTLD managers embrace, though, is the principle of subsidiarity. The White Paper recognized the role that national governments have in ‘manag[ing] or establish[ing] policy for their own ccTLDs’. This principle was incorporated in both the ICANN’s MOU with the DOC and in other documents, most notably RFC 1591, ICP-1 (Internet Co-ordination...
Policy 1)\textsuperscript{43} and the ‘Principles and guidelines for the delegation and administration of country code top level domains’ adopted by the Governmental Advisory Committee (GAC) for ICANN. The latter principles state that:

\ldots ccTLD policy should be set locally, unless it can be shown that the issue has global impact and needs to be resolved in an international framework. Most of the ccTLD policy issues are local in nature and should therefore be addressed by the local Internet Community, according to national law.\textsuperscript{44} (Article 1.2)

This principle of subsidiarity has been transposed, practically ‘verbatim’, in a number of the ICANN–ccTLD Exchanges of Letters.\textsuperscript{45} One could say that in such cases subsidiarity applies in lieu of a formal agreement with ICANN.

Although the management of a ccTLD is in the hands of the respective ccTLD manager, registrations in the second level and other levels further from the TLD are managed on lines similar to that of second-level gTLDs, that is, through agreements between the ccTLD registry and registrars, with the latter assisting registrants in the registration of their domain names. However, in the case of ccTLDs, there is no system of ICANN accreditation of registrars. It is normally the respective ccTLD registry which accredits its registrars. Moreover, as explained above, the role of contracts here is more modest than it is in the regulation of the gTLD namespace.\textsuperscript{46} In effect, the management of the country-code namespace is in the hands of the ccTLD manager, in the spirit of the principle of subsidiarity abovementioned. Some ccTLDs have a rather liberal policy with the types of domain names registered, and with regards to who is allowed to register a domain name (eg Austria). Other ccTLDs are more restrictive in their policy. Thus, for example, to register a domain name under .no, a business must first be registered in the register of business entities in Norway, whereas a private individual may only be registered under the priv.no domain provided he or she is 18 years or older and has a Norwegian identity number.\textsuperscript{47}

Some ccTLD regimes have a statutory footing. Thus, for example, Norway’s Domain Name Regulations,\textsuperscript{48} issued under the authority of the Electronic Communications Law,\textsuperscript{49} establish the role of the registry (Norid) and registrars and requires that an applicant for a domain name signs a declaration confirming certain facts (eg that the domain name is not in

\textsuperscript{43} ICP-I: Internet Domain Name System Structure and Coordination (ccTLD Administration and Delegation)(May 1999), see <http://www.icann.org/en/resources/cctlds/delegation>.
\textsuperscript{44} <http://archive.icann.org/en/committees/gac/gac-cctld-principles.htm>.
\textsuperscript{45} See eg the exchange of letters regarding .no, .uk, .lu and .at. Other ccTLD managers like AFNIC (.fr) opted to refer to the GAC principles and guidelines \textit{in toto}.
\textsuperscript{46} See also Bygrave (n 11) 180.
\textsuperscript{47} See further <http://www.norid.no/domeneregistrering/registrere.en.html>. See also Bygrave and others (n 24) 172–212.
\textsuperscript{48} Forskrift om domenenavn under norske landkodetoppdomener (abbreviated as domeneforskriften) of 1 August 2003.
\textsuperscript{49} Lov av 4. juli 2003 nr 83 om elektronisk kommunikasjon (abbreviated as ekomloven).
breach of the law, does not infringe third-party rights, etc) It also sets up an ADR committee to hear domain name disputes. Anyone wanting to register a domain name in Norway has to apply via one of Norid’s approved list of .no registrars.

Just before the opening of the gTLD namespace under the new gTLD program, there were by far fewer gTLDs than ccTLDs. With the opening of the new gTLD namespace, this situation will be reversed. From holding a considerable portion of the DNS, ccTLD managers will hold a minority of the whole domain namespace. Whether this will indeed strengthen ICANN’s position and regulatory clout will likely depend on the extent to which the ccTLD managers, in the event of a divergence of opinion with ICANN, have effective backing from their respective state as well as from the advisory committee representing the states within ICANN—the Governmental Advisory Committee (GAC). It may also lead to contract becoming the main regulatory tool of the whole DNS with, of course, the consequence that ICANN will play a more dominant role as the common and constant contractual partner in any such eventual regulatory framework.

4. Hybrid net

4.1 – Complexity of the legal landscape

The previous two sections of this article analysed the various regulatory instruments underlying ICANN and the DNS. The next issue to consider is whether and how these different types of instruments may co-exist and interrelate as a coherent regulatory framework.

What is immediately obvious is the complexity of the regulatory framework, both with regards to the types of regulatory mechanisms used—ranging from hard to ‘soft’ law—as well as in the sheer quantity of mechanisms used. Both ICANN and the DNS are examples of intricate network structures composed of a variety of ‘hybrid’ elements. The notion of hybridity is useful to elucidate the complexities of elaborate networks. The term ‘hybrid’ ‘is a combination of a contradictory difference, marked not by either/or, but by both-and. It is this both-and that will guide the search for new tendencies in law and society’. Hybrids are ‘the combination of both sides of [a] difference’.

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50 As at March 2013, there were 22 gTLDs.
51 An updated list of ccTLDs is available at <http://www.iana.org/domains/root/db>. As at 9 October 2013, there are 250 ccTLDs in ASCII.
The mechanisms used may be grouped under the following regulatory types:

(i) private law regulation
(ii) public law regulation
(iii) private–public arrangements
(iv) self-regulation
(v) technical code or lex informatica

A further dimension to the above list is the international element, namely ‘private international law’ since in some cases different national laws may be applicable.

As mentioned earlier, ‘private law regulation’ is predominant in the legal basis of ICANN as well as in the gTLD namespace where a complex web of contracts is used between ICANN, the registries, registrars and third-party escrow agents. Contracts and less formal private law mechanisms are also used, though to a lesser degree, in the regulation of the ccTLD namespace as between registries and registrars.

‘Public law’ also plays a significant role, both in the vexed question of the role of the US government, through the DOC, in ICANN and hence its influence on internet governance, as well as in the role of the national authorities in the governance of the DNS. The AOC shows a gradual diminishing of influence of the DOC and has been described as having more a political than contractual importance. Nevertheless, the requirement in the AOC and IANA contracts for ICANN’s physical presence in the USA as well as that its primary operations are to be in the USA is significant. As discussed earlier, it anchors ICANN physically in the territory of the USA, potentially vesting the USA with jurisdictional and enforcement powers well beyond the subject-matter of these three agreements. Coupled with the DOC’s role in auditing and approving any changes in the root file zone that IANA makes, this further evidences US political oversight of ICANN.

Another observation that can be made about the complexity of these networks is with regards to the ‘private-public overtones’. Though ICANN

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54 By ‘private law regulation’ is meant regulation that is voluntarily agreed to by private actors, the most common example of which is contract.
55 See section 3.3 on exchanges of letters and Accountability Frameworks.
56 See further section 3.3.
57 See Froomkin (n 9) 223.
58 There have been instances of domain name seizures by the US Department of Homeland Security, eg the seizure of www.rojadirecta.com though that site had previously been found to be operating legally by Spanish courts—<http://www.huffingtonpost.com/2011/02/02/rojadirecta-org-seized_n_817458.html>. Through its IANA function, ICANN is responsible for the root zone management of the DNS. Verisign Inc., also based in the USA, is the root zone maintainer. A domain name seizure warrant issued by any US court may thus be easily enforced on Verisign Inc as the root zone maintainer as well as the registrar of some of the most popular TLDs like .com. Likewise, ICANN’s physical presence in the USA also brings it within easy enforcement reach of US authorities.
is set up as a private law organization, it originated in the public call made by the US DOC in the White Paper for a new corporate entity to take over primary responsibility for managing the DNS. ICANN’s contract with the DOC with respect to the IANA functions and the AOC are other facets of the private–public character of the ICANN–DOC relationship. This type of complexity may also be seen in the regulatory framework of the DNS at the national level in those countries where the state has set up a private entity to govern its ccTLD namespace, while at the same time retaining some sort of stake in that private entity. Thus, for example, the administration of the .no namespace is in the hands of UNINETT Norid AS, a non-profit shareholder company owned by the Norwegian state.

The regulation of the DNS is not just through legally binding norms. Technical actors use computer code as the technical backbone of cyberspace (lex informatica). Much of the technical rules underlying the technical structure and function of the internet are extra-legal in the form of policy, internet standards, best current practices and other ‘self-regulatory mechanisms’. As Sand explains, ‘[t]he concept of soft law has been produced by both public and private law in formulating more or less specific guidelines, but with an unclear legal status’. Some authors claim that such instruments are not law but ‘only a social notion close to law’ but others argue that they ‘are nevertheless commonly seen as a type of law... because they are aimed at and capable of having some practical effect on conduct’. Arnaud describes the soft law phenomenon as infra-droit (literally ‘below law’) and holds that what is not law in the strict sense nevertheless participates in the legal phenomenon lato sensu.

Further complexity may arise from the potential application of different national laws to similar facts due to the operation of ‘private international law’. Thus, for example, in the case of gTLD registrars not based in the USA, it is normally up to the registry to determine its dispute-resolution policy with such registrars, although most registries opt for their country of registration as venue. In practice, this means that a number of courts in different countries can technically have jurisdiction to determine disputes between

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60 See further Mueller (n 9).
61 See further Bygrave and others (n 24) 179.
63 See Bygrave (n 11) 171. In general, ‘self-regulation’ is taken to mean a private norm created by private groups who have ‘rule-making capacities and the means to induce or coerce compliance’ See SF Moore, ‘Law and Social Change: The Semi-Autonomous Social Field as an Appropriate Subject of Study’ (1973) 7 L & Soc’y Rev 719, 720.
64 Sand (n 52) 876.
66 Bygrave (n 11) 172.
68 See eg art 6 in .museum’s Registry Agreement Appendix S Part V.
non-US gTLD registries and registrars, with the possibility that different laws might be applied by such courts as the applicable law with respect to the dispute, leading to potentially different or even contradictory outcomes. The same observation may be made with regards to the complex dispute resolution and choice-of-law clauses in the ccTLD ICANN-RAs.69

This variety and mishmash of legal and extra-legal regulatory mechanisms is typical of hybrids and networks. This is because:

[n]etworks position themselves between law and non-law, profiting from the symbolic association with law, but without inflexible legally formalized positions.70

4.2 – Utility of looking at networks as hybrids

ICANN is a mixed network with elements from both private and public law permeating its constitution. Hybridity is a tool to help one analyse and understand the limits of traditional legal categories and descriptions with a view to trying to find ways to understand and, if possible, reconcile any contradictions that result from such categorization, or from the overlapping of such categories.

Teubner draws a distinction between private networks71 and private–public networks. Private networks usually exhibit a paradox as a result of what he calls a ‘double bind’ which arises because of the contradictory line of action a network node could take: either acting to safeguard its own individual ‘selfish’ interests or to safeguard the interest of the collective. This gives rise to what Teubner calls ‘double attribution’. This means that ‘[o]ne and the same economic transaction is attributed twice, to the individual actor as the node in the network and to the overarching network itself’.72 Such contradictions arise because networks are a unitas multiplex—a collective of multiple individual actors.73 Though the individual actors or stakeholders in the network also pursue their own interest, they also pursue a common interest with the other network parties to realise the overarching network purpose. Tensions may arise, for example, between self-interest as an autonomous actor and between the interests of the collective, for

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69 See the .eu Registry Agreement (art 6.7) where the validity, interpretation and effects of acts of the European Community are to be judged according to the laws of Belgium, whereas the acts of ICANN shall be judged according to California law. A similar provision is found in the .au and the .jp Sponsorship Agreements.

70 Sand (n 52) 874.


73 Teubner (n 71) 109–10.
example, between the role of a registrar vis-à-vis the other registrars and its registry; or between the role of a registry vis-à-vis the other registries and ICANN.

The complexity is magnified in the case of mixed networks such as ICANN where there are private–public cooperative arrangements. The ‘double bind’ of private networks turns into a ‘multiple bind’. The conflicts that arise are normally not just because of ‘the conflict between collective and individual action. Rather it is the conflict of different rationalities in society which drives the private-public arrangements into confusion’.  

These different rationalities are evidenced in the unique multi-stakeholder structure of ICANN which is made up of representatives of different ‘constituencies’ or ‘stakeholder groups’, often with varying or even conflicting interests. These stakeholder groups comprise the private and public sectors, the technical community, the business community, non-commercial users, civil society and the GAC. It may happen that, on a particular issue relating to internet governance, there is a divergence of opinion between the stakeholders. This is normally sought to be resolved by compromise through the operation of the multi-stakeholder process. ICANN thus attempts in its structure to provide a balanced representation of these different stakeholder groups by giving them a voice in its Board where all decision-making authority rests. The Board is tasked to fulfil, observe and uphold ICANN’s commitments in the Articles of Incorporation, Bylaws and AOC, all of which documents invoke the public interest as a guiding principle. The Board does, nevertheless, also have the power to amend its own Bylaws by a two-thirds majority vote.

Moreover, ICANN’s processes are open, bottom-up and consensus-based, drawing on norms derived from internet standards organizations such as the IETF. One of the most important supporting organizations tasked with the development of policy has itself a multi-stakeholder structure, namely the GNSO which is responsible for the policy development process (PDP) with regards to the gTLD. The GNSO comprises members from both stakeholders that have a contractual relationship with ICANN (ie registries and registrars) as well as non-contractual stakeholders (comprising commercial stakeholders like intellectual property holders, internet service providers

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74 Teubner (n 72) 18.
75 Where agreement by all stakeholders cannot be reached, the majority view is taken, with room for the dissenting stakeholders to record their dissent. See eg the dissenting position of the representatives of the Non-Commercial Stakeholder Group with response thereto from the At-Large Advisory Committee representative in the Advice to the ICANN Board submitted by the Consumer Trust Working Group regarding the definitions, measures and targets for competition, consumer trust and consumer choice (version 4 dated 5 December 2012 (Appendix D)).
77 See Bylaws art XIX.
78 In art 4 of the AOC, the DOC affirms ‘its commitment to a multi-stakeholder, private sector led, bottom-up policy development model for DNS technical coordination that acts for the benefit of global Internet users.’
and non-commercial stakeholder groups). So even at the micro level of an important stakeholder organization like the GNSO, room is given for different voices with varying interests to be heard. The PDP is described in ICANN’s own Bylaws.

One may thus observe a system of checks and balances within the structure of ICANN and the PDP which, if properly observed, provides a balanced representation of the various interests in internet governance. The above-mentioned basic documents underlying ICANN’s structure and processes have undertones of a state constitution, especially when seen together with the other regulatory instruments underlying ICANN and its management of the DNS. A characteristic of mixed networks is that ‘a broader public law concept of a network constitution is required which would indeed transfer principles of institutional autonomy, constitutional rights, due process, rule of law, public accountability to these mixed private-public configurations’. It is also in light of these public law—indeed constitutional law—elements that ICANN’s role and function should be interpreted and understood.

5. Mesh

The focus of this article now turns to the question of how these different types of legal instruments, which are so different in nature and made with different legal actors, relate together. How are they to be read and applied together so that there is coherence in this legal framework? As mentioned earlier, ICANN has been described as a ‘self-constitutionalizing’ body. Both its formal organization as a private law foundation and the instruments canvassing its external relations with the abovementioned actors are part of its constitutional framework. They are the ‘constitutive’ documents of, respectively, ICANN and the DNS and are, so to speak, their legal sources. An analogy may be drawn with how the various sources of law operate within a state’s legal system.

As Ost and van de Kerchove explain, the traditional approach in law has been to look at regulation and law-making authority as being in the form of a pyramid with the state at the top as the supreme legislator in both the internal legal order and international relations with other sovereign states. This is Kelsen, Hart and Ross’s view of a political and legal order centred round the state. In this tradition, the sources of law have a hierarchical structure in a state’s internal system with, generally speaking, the state’s constitution or similar basic law ranking topmost, followed by statute, in turn followed by delegated legislation. Depending on the legal system and

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79 In particular its Articles of Incorporation, Bylaws, AOC.
80 See further Teubner (n 6) 220–23.
81 See Teubner (n 72) 19.
82 See Teubner (n 6) 220–23.
83 Ost and van de Kerchove (n 5) 11.
tradition, court judgments may have the binding force of law (e.g., English common law) or merely a persuasive value (e.g., several civil law systems). Within this hierarchy of legal sources one also finds customary law as well as contracts and other self-regulatory instruments.

The previous sections of this article show the well-nigh impossibility of applying this traditional view to the regulation of ICANN and the DNS. There is no supreme sovereign-making power, no rigid clear-cut territorial delimitations of a state where that sovereign rules. ICANN has not been set up under Treaty law, although its function and role are of international significance in that it manages unique and critical resources of worldwide importance.

In their seminal work on network or ‘mesh’ regulation, Ost and van de Kerchove perceive a paradigm shift caused by the profound transformation of the state and of modern law. The world, since Kelsen, Hart and Ross were writing, has changed with the advent of globalization of the financial markets, the growing interdependence of economies, the developments in information and communication technologies, the advent and ubiquity of the internet, the appearance of powerful private transnational organizations, the rise in importance of human rights and the weakening power of the state to take action.84

This paradigm shift led to what Ost and van de Kerchove call a crisis of the pyramidal model of regulation.85 It led them to propound that a rival paradigm has been progressively emerging—that of the network (réseau) model of regulation, albeit with important remnants of the pyramidal model persisting.86 They explain that with network regulation, the state ceases to be the sole source of sovereignty (having to share this not just with super-state authorities but also with powerful private entities); the will of the legislator ceases to be received as dogma (it is accepted only subject to conditions, after a complex evaluation process both ahead and after the enactment of a law); the borders between fact and law at times become blurred; the different powers of the state interact (judges become co-authors of the law and the sub-delegation of normative power which, in principle was prohibited, multiplies); the juridical systems (and, more broadly, the normative systems) become entangled; knowledge of the law which traditionally proclaimed its methodological purity (mono-disciplinary) now leans towards an interdisciplinary mode and is more the result of a learning process than a priori axioms.87 Moreover, justice, which in the pyramidal model was reduced to the hierarchies of values fixed in the law, is today understood in terms of the balance of interests and the equilibration of values which are both different and variable.88

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84 ibid 12.
85 ibid 13.
86 ibid 14.
87 ibid 14.
88 ibid.
The starting point and focus of Ost and van de Kerchove’s mesh theory of regulation is the state’s legal system, namely the effect of globalization and internationalization on a state’s ‘internal’ legal order and the interplay of law and other forms of regulation within that state’s legal system. They illustrate this by looking at the impact of European Union (EU) law on Member States and describe the EU’s extensive law-making powers as a ‘progressive intrusion in the national legal system’.99 One way in which the potential tension between EU law and national law is resolved is through the principle of subsidiarity, whereby action is taken at an EU level ‘only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale or effects of the proposed action, be better achieved by the Community’.90

ICANN’s role in the management of the DNS has also sometimes led to tensions with individual states. Though ICANN is a very different legal creature to the EU, states have also had to come to some arrangement with ICANN with regards to the regulation of the ccTLD namespace and, as seen in Section 3.3, most ccTLD managers have also embraced a subsidiarity principle.

This article seeks to extend the application of mesh theory to ICANN, a private organization with international reach though not a creature of Treaty law, and its management of the DNS. This article thus takes a different starting point than that taken by Ost and van de Kerchove which has the state and its regulatory framework as its focus.

Ost and van de Kerchove explain that the move towards network regulation is the result of two major transformations of the legal and political landscape: (i) the move from the use of statute as the primary instrument of control within a state to other forms of ‘regulation’ such as self-regulation and (ii) the increased use of the notion of ‘governance’ instead of government.91 As regards the first transformation, the unilateral, authoritarian, centralized and sovereign authority is giving way to a flexible, decentralized, adaptive and often negotiated regulation. The second transformation is reflected in the increased popularity of the notion of ‘governance’ in lieu of ‘government’. Government is ‘the conduct of affairs attached to the sovereign state, the imposition of the rules by a public and central authority’.92 Governance, explain Ost and van de Kerchove, is ‘a process of co-ordination of actors, of social groups, which are not all attached to the state, nor

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89 EU legislation has direct effect on Eumember states. ibid 65.
90 See art 5(3) of the Treaty on European Union. Another mechanism is the doctrine of the supremacy of EU law over national law. See further (n 5) 66–68.
91 See Ost and van de Kerchove (n 5) 26–32.
state-owned, to attain the aims which have been properly discussed and collectively defined in fragmented and uncertain environments’.93

Other scholars have also discerned ‘the contemporary experience of the collapse of hierarchical and centralised notions of law and, on the other, an understanding of the limited and formal possibilities of established jurisprudential approaches in accounting for this experience’.94 The Finnish project on polycentricity argues for a polycentric account of the law which thinks not only within the traditional boundaries of the law, but also along the limits of what the law is traditionally seen as ‘not’ being, for example, ‘ethics, morality, politics, religion or economics, and, further, values, emotions or experiences’.95 These different positions from which the law may be taught are ‘polycentres’ or ‘the multiple stages on which law is set to play its act’.96 One effect of this approach is the ‘destabilisation of law from a single centre stage into the innumerable stages of polycentricity [which] also sets the alleged identity and coherence of law into play’.97

The focus, therefore, cannot just be on the activities of the lawmaker. As Reed puts it ‘[s]ocial norms reflect the consensus of a community about how its members should behave, and those norms which are given the status of law are developed at least as much by the community as by the lawmaker’.98 Murray calls this ‘network communitarianism’ and sees regulation as ‘a process of discourse and dialogue between the individual and society’.99 This is evidenced in the multi-stakeholder structure of ICANN as discussed in the previous section.

The use of a pyramid as a graphical description is popular in regulatory discourse. In examining different enforcement mechanisms of state regulatory bodies, Ayres and Braithwaite proposed a pyramid showing different enforcement strategies with mild self-regulatory measures at the bottom and gradually more stringent enforcement measures as one progresses towards the top of the pyramid.100 However, their pyramid reflected only the regulatory action of one actor: the state. Grabosky extended Ayres and Braithwaite’s model by proposing a three-dimensional pyramid which, besides state regulatory action, also takes into account two other institutions which comprise a regulatory system: (i) regulated entities themselves and their industry associations; and (ii) third parties, both public interest institutions and commercial actors.101

93 ibid. On internet governance, see Bygrave (n 11) 169–70.
95 ibid 5.
96 ibid.
97 ibid.
98 C Reed, Making Laws for Cyberspace (OUP 2012) 11.
100 I Ayres and J Braithwaite, Responsive Regulation: Transcending the Deregulation Debate (OUP 1992) 38–39.
The use of such pyramids by Ayres, Braithwaite, Grabosky and other scholars\textsuperscript{102} of the ‘responsive regulation’ school of thought is to illustrate the escalating levels of enforcement strategies that are available. The higher its location in the pyramid, the more coercive is the regulatory instrument. All of the various enforcement mechanisms, whatever their level, play an important enforcement role. Indeed, the use of levels within the pyramid is not meant to give the impression that the closer a level is to the apex, the more effective that enforcement strategy is. Ayres and Braithwaite themselves note the paradox that extremely stringent regulatory laws may sometimes cause underregulation.\textsuperscript{103} Thus, for example, withdrawing a license—which is at the apex of the enforcement pyramid—though effective, would be drastic and ‘morally unacceptable to use it with any but the most extraordinary offenses’.\textsuperscript{104} In this sense, ‘[r]egulators do not have their greatest effects by directly sanctioning law-breakers; more important is the indirect effect of lending authoritative support to law-abiding constituencies within the organization’.\textsuperscript{105}

The mesh notion of regulation is a better descriptor of the regulatory framework of ICANN and the DNS than Ayres and Braithwaite’s notion of a pyramid. Ost and van de Kerchove’s concept of network regulation uses the metaphor of a ‘network’ or ‘net’ which is woven from a set of interlinked yarns and comprises threads and nodes where the threads interlink.\textsuperscript{106} Some authors also refer to it as ‘mesh regulation’, using a similar metaphor of ‘the steel mesh in reinforced concrete structures or the mesh in fishing nets where, when put together different strands provide a structure much stronger than that of the individual components’.\textsuperscript{107} In the mesh model, ‘[t]he origin of the strands, whether from self-regulation or state regulation is immaterial: what is important is the flexibility and strength of the structure provided’.\textsuperscript{108} The mesh regulatory model comprises regulatory efforts by state and non-state actors alike, and includes various types of regulatory mechanisms including computer code.

Schultz also attempts to apply Ost and van de Kerchove’s mesh regulation to internet regulation. Schultz sees three main categories of actors in cyberspace: states, technical actors and users.\textsuperscript{109} He holds that each of these actors is the source of a normative flow (\textit{un flux normative}): (i) states regulate through legislation; (ii) technical actors use computer code as the technical backbone of cyberspace (\textit{lex informatica}) and (iii) users regulate behaviour through self-regulation. Schultz thus sees three principal sources of norms

\textsuperscript{102} See also J Black, ‘Critical Reflections on Regulation’ (2002) 27 Aust J Legal Phil 1–35.
\textsuperscript{103} Ayres and Braithwaite (n 100) 36.
\textsuperscript{104} ibid.
\textsuperscript{105} ibid 33.
\textsuperscript{106} See Ost and van de Kerchove (n 5) 23.
\textsuperscript{108} ibid.
in cyberspace: statute, *lex informatica* and self-regulation.\footnote{See further Schultz (n 109) 47.} Each of these different actors pursues different objectives and defends divergent interests. This means, he claims, that in many cases, this interaction becomes a contest, with each actor jostling to impose its norms, leading to a confrontation or collision of the normative flow which each actor is seeking to impose.\footnote{ibid 59.} The rivalry between these models of regulation means that one can hardly know *a priori* which model will govern a certain issue in cyberspace. Schultz holds that each actor will expect to impose its model and the probability of an actor of achieving that varies from one domain to another, from one problem to another.\footnote{ibid 60–61.}

Schultz’s thesis of there being three main categories of actors in cyberspace, each of which pushes for the use of one of three separate models of regulation is alluring. Yet I hold that this picture is incomplete and simplistic. We have seen that there are numerous actors in cyberspace. Indeed, one of Schultz’s categories—users—can itself be split into various categories, each of which is important enough in its own right to be deemed another category and not a sub-category, namely business actors, non-commercial actors and even, more broadly, civil society or ‘the Internet community’ as ICANN’s Articles of Incorporation calls them.\footnote{ibid 60–61.} More importantly, it can happen that one group of these ‘users’ (eg business users) has conflicting interests to those in another group of ‘users’ (eg non-commercial users). Indeed, conflicts may also arise among various types of business users, for example, trademark holders and business registrants. Moreover, it is not clear whether the term ‘self-regulation’\footnote{For a definition of self-regulation, see n 63.} used by Schultz includes contract within it—in any case it is rather unfortunate that one cannot distinguish between binding undertakings (contract) and other so-called ‘soft law’ mechanisms in Schultz’s thesis. Indeed, as we have seen above, actors may not always want to opt for binding contractual rules but prefer ‘soft law’ mechanisms.

Another important point that Schultz’s simplified ‘mesh’ model overlooks is that it is not always the case that an actor will opt to use the regulatory model that Schultz pairs with that actor. Thus, for example, a state may not always choose to legislate on an issue, preferring to go for co-regulation with a particular branch of industry, or it may choose to enter into a private–public agreement with another actor, or perhaps to opt for an informal, non-binding arrangement. We have seen this in the various ways national authorities have chosen to document their relationship with ICANN in their (the state’s) management of their ccTLD.

Ost and van de Kerchove’s notion of mesh regulation does not have the fetters of Schultz’s narrow ‘mesh’ model but encompasses the truly
internormative process\textsuperscript{115} that is evident in the regulation of ICANN and the DNS. As we have seen, several different modes of regulation may be needed to satisfactorily address a particular issue. In the context of internet regulation this internormative process may be illustrated by examining how the .eu domain was established. The creation of .eu first required a policy action by the ICANN Board which led to the reservation of the two-letters ‘eu’ as the country code for the European Union in ISO 3166-1. Following the designation of EURid as its ccTLD register, through a process of EU legislation,\textsuperscript{116} ICANN/IANA delegated .eu as a ccTLD to EURid through the .eu RA. In this illustration, at least three different normative models were used: a policy-development process to amend an ISO standard, various EU legislation to select and set out the terms of reference of the registry and a contract for the delegation of the .eu domain. Each of these three regulatory mechanisms played an equally important role in this process.

6. Conclusion

The various regulatory mechanisms discussed in this article—whether formal or informal, ‘hard’ or ‘soft’, legal or computer code, statute or self-regulation—provide alternative and complementary regulatory devices for ICANN and the DNS. While \textit{lex informatica}, self-regulation and state regulation intertwine and reciprocally complement each other’s rules and processes, each one ‘retains its identity and regulatory strengths’.\textsuperscript{117} Indeed, the usefulness of mesh theory as applied to these hybrid networks is the insight that the relative importance and authority of each source of rule ‘is greater or lesser according to the nature of the activity and the other participants being regulated’.\textsuperscript{118} Though not free from controversy, in particular due to the considerable oversight powers of the USA, the result of this tapestried and hybrid regulatory framework has been a relatively stable framework for DNS governance.

\textsuperscript{115} On internormativity, see Carbonnier’s definition in \textit{Dictionnaire Encyclopédique de Théorie et de Sociologie du Droit} (n 67).

\textsuperscript{116} Regulation 733/2002 of 22 April 2002 on the implementation of the .eu Top Level Domain laid down how the eventual entity to run the .eu registry would be chosen, its obligations and the policy framework for this domain. EURid was formally set up under Belgian law as a private, not-for-profit organization on 8 April 2003 and was subsequently designated .eu registry through Decision 2003/375/EC. Subsequently, regulation 874/2004 of 28 April 2004 set out in greater detail the public policy rules concerning the implementation and functions of the .eu TLD such as the accreditation of registrars by the registry, applications for second-level domain names, and an ADR procedure to settle domain name disputes.

\textsuperscript{117} JP Mifsud Bonnici (n 107) 230.

\textsuperscript{118} ibid.