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# **THE GLOBALISATION OF REGULATION AND ITS IMPACT ON THE DOMAIN NAME SYSTEM: DOMAIN NAMES AND A NEW REGULATORY ECONOMY**

by

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## **KEY WORDS**

Globalisation of regulation, the domain name system, Internet governance, information technology, critical infrastructure protection.

## **ABSTRACT**

This is a multidisciplinary work that encompasses considerations of politics, regulation and technology. It considers the impact of technology on the way in which, politically, we are able to regulate technology and how we devise policy to guide that regulation. The added complication is that Internet technology knows no jurisdiction. The rulemaking established in recent years is globally applicable and is carried out without the direct involvement of national governments in the key decision making processes, particularly in the environment under examination here which focuses on the management of the technical resources of the Internet.

In formulating the hypothesis that grounds this work, I have focused on two things. Firstly, that technical regulation has political, and therefore, policy implications. Secondly, that where there are policy implications with direct commercial impact, we can expect to see the vigorous involvement of corporations as they manage the environment in which they do business. These two critical conditions have driven the formulation of policies and procedures for making decisions about Internet governance. They have also driven the actual decisions which have been implemented, to a greater or lesser degree of success.

This research contributes to the scholarship in four significant ways. The first is that the Internet Domain Name System (IDNS) and its governance present a new perspective on the discussion of the globalisation of business regulation. The data used to support the analysis has not been collated or examined previously and is presented here to illustrate the extension of the literature and to frame the hypothesis.

The second is that I have found that national governments have, despite ongoing control within their national jurisdiction, little effective influence over the management and governance of the Domain Name System (DNS) at an international level. Thirdly, I have found that corporations have significant power to determine the way in which policies for the management of the technical resources of the Internet are discussed, developed to consensus policy positions, implemented and reviewed.

Finally, the research has opened up new lines of inquiry into the rise of a new class of bureaucrats, the cosmocrats and their cosmocracy, on which further research continues.



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## **SUPPLEMENTARY MATERIAL<sup>1</sup>**

- A. FRAMEWORK FOR GLOBAL ELECTRONIC COMMERCE, 1 JULY 1997**
- B. US DEPARTMENT OF COMMERCE - REQUEST FOR COMMENT ON DNS ADMINISTRATION, 2 JULY 1997**
- C. US DEPARTMENT OF COMMERCE - GREEN PAPER – A PROPOSAL TO IMPROVE THE TECHNICAL MANAGEMENT OF INTERNET NAMES AND ADDRESSES, 20 FEBRUARY 1998**
- D. US DEPARTMENT OF COMMERCE - WHITE PAPER – STATEMENT OF POLICY ON THE MANAGEMENT OF INTERNET NAMES AND ADDRESSES, 5 JUNE 1998**
- E. MEMORANDUM OF UNDERSTANDING BETWEEN ICANN AND DEPARTMENT OF COMMERCE, 25 NOVEMBER 1998**
- F. GOVERNMENTAL ADVISORY COMMITTEE OPERATING PRINCIPLES, 25 MAY 1999**

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<sup>1</sup> These documents are included in their full form because they are now difficult to find on-line and have not been published in hard copy format. The documents are in the public domain and specific permission to reprint the documents is not required.

## GLOSSARY<sup>2</sup>

### 3Com

US network hardware and software corporation that provided financial support (US\$175,000 loan in 1999) for ICANN during start-up phase.

### AARNET

Australian Academic Research Network, established under the auspices of the Australian Vice-Chancellors Committee (AVCC) to link the major Australian tertiary education institutions and other research bodies such as the Commonwealth Scientific & Industrial Research Organisation. AARNet was sold to national telecommunications carrier Telstra after the emergence of the Internet. AARNet managers were influential in technical development of the Internet within Australia and overseas. Those managers and the AVCC also played a significant role in transition of the .au ccTLD regime from one of privately held, publicly funded Internet architecture to publicly managed privately commercialised assets.

### JEAN-FRANÇOIS ABRAMATIC

ICANN Director 1999-2000, Dr Abramatic was formerly Director of Development & Industrial Relations at France's INRIA, Associate Director of the MIT Laboratory for Computer Science, author of the French Government's report *Le Développement Technique de l'Internet* (<http://mission-dti.inria.fr/>) and Chair of the World Wide Web Consortium (W3C). He was selected for the ICANN Board by the Protocol Supporting Organization.

### AMADEU ABRIL I ABRIL

ICANN Director (selected by DNSO); formerly member of DNSO Names Council and gTLD-MoU Policy Oversight Committee. Mr Abril teaches law, has a private legal practice (including work as Legal & Policy Advisor to domain name registrar Nominalia) and was an executive with the European Commission.

### ACSNET

Electronic network established by the Australian Computer Society (ACS), a professional organisation for the IT sector. ACSNet was superseded by the Internet; transition from a closed to a public network was reflected in ACS involvement in the establishment of .auDA and its precursors.

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<sup>2</sup> This is comprehensive collection of key terms, corporations and individuals. This dramatis personae has not previously been published and provides a guide to a wide variety of sources throughout the work.

## **ADDRESS SUPPORTING ORGANIZATION (ASO)**

The ICANN Address Supporting Organization is one of three Supporting Organizations (that is, entities that assist, review and develop recommendations on Internet policy and structure regarding specific areas of ICANN's activity and that facilitate diverse international participation in technical management of the Internet). It names three Directors to the ICANN Board.

### **ERICK IRIARTE AHON**

Appointed as a member of ICANN At-Large Advisory Committee (ALAC) in 2003, Mr Ahon is a computer law specialist from Peru. He was a member of the DNSO UDRP Review Task Force and Transfer Task Force, a legal advisor for the administrator of the .pe ccTLD and member of the Non Commercial Constituency in the DNSO. He was a founder of the Peruvian Cybertribunal and Electronical Magazine of Computer Law (REDI).  
<http://www.dnso.org/clubpublic/tor-udrp/Erick.Iriarte.bio.html>

### **IZUMI AIZU**

A Member of 1998 ICANN Advisory Committee on Membership and appointed as a Member of the At-Large Advisory Committee (ALAC) in 2003. Mr Aizu is a former Secretary General of the Asia & Pacific Internet Association, member of the UN Digital Opportunities Task Force (DOT Force) and the NGO & Academic ICANN Study (NAIS). He has a background in advertising and network development.  
<http://www.anr.org>

## **ALTERNATIVE ROOT**

A root system outside what a 1999 ICANN paper characterised as the 'one authoritative root' and thereby not recognised by most personal computers, servers or other devices on the Internet. For example, web sites may be inaccessible because of domain name collisions and e-mail messages may not be received. Arguments about the technical and commercial viability of alternative root schemes were a feature of early debate about the legitimacy and operation of ICANN and .auDA, encapsulated in Milton Mueller's landmark *Ruling The Root* (2002).

### **SENATOR RICHARD ALSTON**

Australian Federal Government Senator and Minister for Communications, Information Technology & the Arts March since 1996. Alston's Department played a key role in facilitating the establishment of .auDA, the centrepiece of the co-regulatory domain administration regime discussed in this thesis; in the creation of safety-net electronic addressing legislation for the .au space and in support of the ICANN Governmental Advisory Committee. Senator Alston has LLB, LLM, BA, BCom and MBA degrees. <http://www.richardalston.dcita.gov.au>.

## **AMERICAN REGISTRY FOR INTERNET NUMBERS (ARIN)**

A non-profit membership organization responsible for administration and registration of Internet Protocol (IP) addresses in the geographical areas previously managed by Network Solutions Inc., including North America, part of the Caribbean and sub-equatorial Africa. <http://www.arin.net>

## **AMERICA ONLINE (AOL)**

ISP business of US AOL Time Warner content and carriage conglomerate. AOL provided financial support for ICANN during the start-up phase. AOL's walled garden model, essentially a private network where many resources are found through proprietary keywords, predates commercialisation of the Internet and search engines such as Google. Although the efficacy of that model is now uncertain, consumer experience in resource identification on AOL and similar networks influenced much writing about the value of domain names and requirements for regulation of the DNS.

## **MADS BRYDE ANDERSEN**

Danish Member of ICANN Advisory Committee on Independent Review.

## **ANTI-CYBERSQUATTING PROTECTION ACT (ACPA)**

1999 US federal legislation, independent of the ICANN UDRP, dealing with disputes about rights to domain names in the generic top level domain (gTLD) name space and .us ccTLD. It reflects lobbying by major intellectual property interests. The legislation encompasses penalties for cyber-squatting and is considered by industry analysts to have significantly reduced speculative investment and trade in domain names.

## **ASCEND COMMUNICATIONS**

A US network engineering group (subsequently acquired by Lucent Technologies), Ascend provided financial support for ICANN during the start-up phase.

## **ASIA PACIFIC NETWORK INFORMATION CENTRE (APNIC)**

A non-profit membership organisation responsible for administration and registration of Internet Protocol (IP) addresses in the Asia-Pacific region, for example, for Japan, China, New Zealand and Australia. <http://www.apnic.net>

## **AUCTION**

Online mechanism for the resale of domain names in some gTLDs. Domain name auction services may be provided by specialists, for example, by major registrars that retail pre-registered or waitlisted names, by individual site owners or through sites such as on-line auction house, eBay. Although domain name valuations are sometimes

unreliable, public auctions provide an indication of the price at which registrants are prepared to buy and sell. Some sense of the perceived value of domain names can then be determined. Major specialist domain name auction sites have wound back or abandoned their activities since the dot-com downturn of 2000.

### **KARL AUERBACH**

US information technologist who has attracted international attention as a critic of ICANN, questioning its operation and, more broadly, Internet governance issues. Mr Auerbach was elected as an ICANN At-Large Director in 2000. <http://www.cavebear.com>

### **AUSTRALIAN COMPETITION & CONSUMER COMMISSION (ACCC)**

Australian national business regulator, with responsibilities under trade practices and telecommunications law. The ACCC has adopted a 'hands-off' approach to overall administration of the .au ccTLD (broadly endorsing establishment of .auDA and introduction of competition in registrar services), instead concentrating on inappropriate practice by some businesses within the Australian domain name industry. <http://www.accc.gov.au>

### **AT LARGE**

Participation by the global Internet community, however that is defined, in governance of the Internet and specifically in ICANN has been a feature of US Government statements about the transition to a privately administered international resource. The identification of that community and the development of specific mechanisms for participation have been one of the most contested aspects of ICANN. There has been similar contention regarding the shape, objectives and ongoing operation of bodies such as .auDA and CIRA. Key initiatives in relation to ICANN are the attempt to build a substantial At-Large membership, the election of At-Large Directors to the ICANN Board, and work by the At Large Study Committee (ALSC) and subsequent At-Large Advisory Committee (ALAC). <http://alac.icann.org/>

### **AUSTRALIAN COMMUNICATIONS AUTHORITY (ACA)**

The Australian Communications Authority is an Australian Federal Government agency responsible to the Minister for Communications, Information Technology & the Arts, Senator Richard Alston. The ACA oversees national telecommunications standards and numbering activity under the 1997 *Telecommunications Act*. As part of the co-regulatory regime for management of the .au ccTLD, the ACA has a watching brief on .auDA but is not directly responsible for the Australian domain space. The ACA has reserve powers to intervene if .auDA fails to perform. <http://www.aca.gov.au>

## **AUSTRALIAN TELECOMMUNICATIONS USERS GROUP (ATUG)**

ATUG is an industry body primarily composed of major corporate consumers of telecommunication services. It was influential in the deregulation of the Australian telecommunications market and the introduction of competition from the mid-1980s onwards. It was closely involved in the establishment of .auDA. <http://www.atug.com.au>

## **.AU DOMAIN ADMINISTRATION LTD (AUDA)**

The .au Domain Administration is the non-government not-for-profit body responsible for management of the .au ccTLD. It is the counterpart of Canada's CIRA and the United Kingdom's Nominet. .auDA is governed by an elected Board and has a open membership structure. It has a formal agreement with ICANN regarding management of .au, reflecting the 2002 re-delegation of responsibility for .au from the previous volunteer delegate, Robert Elz. .auDA's policies and operation have been built around a consensus-based and transparent regime founded on stability and competitive provision of services. <http://www.auda.org.au>.

## **AUSTRALIAN VICE-CHANCELLOR'S COMMITTEE (AVCC)**

The AVCC is the peak body of executives of Australian tertiary education institutions, embracing over 40 institutions. The Committee was closely involved with the establishment and growth of AARNet, the Australian Academic Research Network (subsequently transferred to telecommunications group Telstra). Some observers have argued that the AVCC has, on occasion, sought to act as a spoiler in the establishment of .auDA (and its predecessor, ADNA). Its interests are evident in friction with the Federal education department over the .edu 2LD (which unlike the .edu gTLD embraces primary and secondary schools) and more recently in proposals for new 2LDs aimed at marketing universities as destinations for fee-paying overseas students. <http://www.avcc.edu.au>

## **JOHN PERRY BARLOW**

Prominent cyber-libertarian, Berkman Fellow and author of the 1996 *Declaration of the Independence of Cyberspace*.

## **BELL ATLANTIC**

US telecommunications company (now Verizon) that provided financial support for ICANN during the start-up phase.

## **BERKMAN CENTER FOR INTERNET & SOCIETY**

An adjunct of the Harvard University Law School, the Berkman Center has been the source of some of the most important writing about Internet governance, in particular the shape of intellectual property and domain name regimes. See for example, studies by Jonathan Zittrain, Charles Nesson and Ben Edelman of online civil society and the operation of ICANN. The Center has provided technical support for ICANN meetings,



hosts an archive of ICANN proceedings and is associated with influential Internet policy sites. <http://cyber.law.harvard.edu/>

### **TIM BERNERS-LEE**

Academic regarded as the 'father of the Web'. Author of *Weaving The Web* (1999). Member of the ICANN Independent Review Committee 2001.

### **VITTORIO BERTOLA**

Appointed as a member of the ICANN At-Large Advisory Committee (ALAC) in 2003, Mr Bertola is a businessman and technologist active in ISOC's Italy chapter and as Chair of the governing panel of ICANNAtLarge.org. He was a candidate in the 2000 At-Large election and founder of a body bidding to operate the .eu registry. <http://www.bertola.eu.org>

### **CARL BILDT**

Former Swedish Prime Minister, UN Special Envoy to the Balkans, Chair of the European Space Agency's Wise Mens' Group on Space issues, Chair of Nordic Ventures Network venture capital association, past Chair of the International Democrat Union and a member of advisory boards that range from RAND Europe to the Aspen Institute Italy. He was Chair of ICANN At-Large Study Committee 2001-02. [http://www.atlargestudy.org/draft\\_final.shtml](http://www.atlargestudy.org/draft_final.shtml) & <http://www.bildt.net>.

### **WILLIE BLACK**

After service as administrator of the United Kingdom's academic research network (a counterpart of Australia's AARNet) as head of UKERNA, Dr Black became the first Managing Director and later Chairman of the .uk domain registry, Nominet. He has attracted attention as an exponent of 'West-West' tensions in global DNS governance, articulating the views of some ccTLD managers regarding ICANN's responsibilities and the power of the ICANN ccTLD lobby vis-à-vis gTLD managers. <http://www.nominet.org.uk/index.html>

### **ROBERT BLOKZIJL**

Selected for the ICANN Board by the Address Supporting Organization, Dr Blokzijl was an ICANN Director from October 1999 until 2002. He was a founding member and Chair of RIPE, instrumental in the creation of RIPE NCC in 1992 as the first Regional Internet Registry. <http://www.icann.org/biog/blokzijl.htm>

### **BOSTON WORKING GROUP (BWG)**

The Boston Working Group involved participants in the IFWP who met in Boston in September 1998, in response to proposals by IANA and Network Solutions Inc regarding establishment of ICANN. The Group argued that the draft ICANN articles of incorporation were inconsistent with the IFWP consensus points and the US government National

Telecommunications & Information Administration White Paper. The Group embodied criticisms about the role of ICANN Supporting Organizations and the operation of the ICANN Board. <http://mama-tech.com/boston/>

## **BROWSER**

A World Wide Web client that displays HTML or other code in a user-friendly format. Browsers utilise the DNS to identify online resources on the basis of domain names rather than Internet Protocol Numbers (numerical addresses), for example by user entry of the URL for a web site or a particular web page. Browsers are independent of tools such as search engines and directories.

## **J BECKWITH [BECKY] BURR**

US Department of Commerce representative closely involved in the transition to ICANN administration. Detailed correspondence found at <http://www.icann.org/correspondence/icann-to-doc-19july99.htm>. Burr is now at Washington law firm, Wilmer, Cutler & Pickering. <http://www.wilmercutler.com>.

## **DIANE CABELL**

Harvard academic, member of 1998 ICANN Advisory Committee on Membership. <http://www.mama-tech.com/>

## **IVAN MOURA CAMPOS**

An ICANN Director (At-Large) from 2000, Dr Moura Campos is a former Professor of Computer Science at the Federal University of Minas Gerais, Director of Special Research Programs at Brazil's National Research Council, Secretary for Science & Technology with the state government of Minas Gerais and Chair of the Internet Steering Committee of Brazil.

## **GERALDINE CAPDEBOSCQ**

ICANN Director from October 1998 until November 2000, Ms Capdeboscq was a senior executive with French information technology group, Bull. <http://www.icann.org/biog/capdeboscq.htm>

## **CENTER FOR DEMOCRACY & TECHNOLOGY (CDT)**

US civil society and online liberties advocacy group. <http://www.cdt.org>

## **CENTR**

Organization of European Union domain name registrars. <http://www.centri.org>

## **VINTON CERF**

ICANN Director and Chair from 2000, Dr Cerf is a senior executive with MCI WorldCom. He was a co-designer of the TCP/IP communications protocol. He was founding President and a Chair of the Internet Society, and Vice President of the US Corporation for National Research Initiatives. Dr Cerf is a colleague of Jonathan Postel and Steve Crocker.  
<http://www.icann.org/biog/cerf.htm>  
<http://www.worldcom.com/cerfsup>

## **LYMAN CHAPIN**

Selected by the Address Supporting Organization, ICANN Director from 2001. A former Chief Scientist at BBN Technologies and NextHop Technologies, Mr Chapin is a former Chair of the Internet Architecture Board and ANSI and ISO standards groups concerned with network & transport layer standards. He was a founding trustee of the Internet Society. <http://www.icann.org/biog/chapin.htm>

## **CIRA**

Non-government body regulating the .ca ccTLD; Canada's equivalent to .auDA. <http://www.cira.ca>

## **CISCO SYSTEMS**

US Internet router giant that provided financial support (US\$150,000 loan) for ICANN during the start-up phase.

## **CIVIL SOCIETY**

"Civil society" is a general term which is defined well at [http://www.lse.ac.uk/collections/CCS/what\\_is\\_civil\\_society.htm](http://www.lse.ac.uk/collections/CCS/what_is_civil_society.htm). In the ICANN context, 'civil society' refers generally to the work of consumer, privacy, online democracy advocates such as Jamie Love (<http://www.cptech.org/jamie/>), Dori Kornfeld (<http://cyber.law.harvard.edu/icann/workshops/LA/rodin.html>) & the work of the Markle Foundation (<http://www.markle.org/>)

## **CLIENT**

Software on the Web, such as a browser, editor or search robot, that reads or writes information on the World Wide Web.

## **JONATHAN COHEN**

Selected by the Domain Name Supporting Organization as an ICANN Director, Mr Cohen is also the Senior Managing Partner of the Shapiro Cohen law group, based in Ottawa. He was first President of the ICANN Intellectual Property Constituency; he previously participated in the 1997 WIPO-IAHC meetings in Geneva. He is actively involved in intellectual

property organisations such as INTA.  
<http://www.shapirocohen.com/jcohen.htm>

## **COMPAQ**

US-based computer company, now part of Hewlett-Packard, that formerly owned the Altavista search engine and that provided financial support for ICANN during the start-up phase.

## **GEORGE CONRADES**

An ICANN Director from 1998 to 2000, Mr Conrades is the former Chair and CEO of Akamai Technologies, President of GTE Internetworking and CEO of BBN, and a former IBM senior executive (including membership of IBM's Corporate Management Board).

## **CONSTITUENCIES**

As of October 2002 the ICANN Domain Name Supporting Organization (DNSO) consisted of the Names Council, several Constituencies and a General Assembly. Each constituency is self-organised. The initial constituencies consist are found at <http://www.icann.org/general/support-orgs.htm>. Any group of individuals or entities may petition the ICANN Board for recognition as a new or separate constituency.

## **COOPERATIVE AGREEMENT**

A type of contractual agreement often used by the United States National Science Foundation (NSF) that facilitates cooperation between private organisations and the US Government for the purposes of encouraging development of new technology with the ultimate goal of turning that technology over to the private sector. Network Solutions Inc (NSI) entered into a cooperative agreement with the NSF in 1993 regarding provision of domain name registration services. The agreement was transferred from the NSF to the US Department of Commerce.

## **COOPERATIVE RESEARCH & DEVELOPMENT AGREEMENT (CRADA)**

Agreement between US Department of Commerce and ICANN found at <http://www.icann.org/committees/dns-root/crada.htm>.

## **CHARLES COSTELLO**

Member of 2000 ICANN Election Committee. Vice-Chair of ICANN At-Large Study Committee 2001.

## **COUNTRY-CODE NAMES SUPPORTING ORGANIZATION (ccNSO)**

The ICANN ccNSO is one of three Supporting Organizations that assists, reviews and develops recommendations on Internet policy and structure regarding specific areas of ICANN's activity and facilitates diverse

international participation in technical management of the Internet. It names three Directors to the ICANN Board. The ccNSO was established as part of the 15 December 2002 ICANN reforms and is can be found at <http://www.cctld.dnso.icann.org/>

## **COUNTRY CODE TOP LEVEL DOMAIN**

A top level domain containing a two-character abbreviation based on the International Organization for Standardization Codes for the Representation of Names of Countries and their Subdivisions (ISO 3166-1). As of October 2002 there were approximately 246 geographic codes some of which are countries, others are territories. Some examples are .au for Australia, .nz for New Zealand, .de for Germany and .jp for Japan. ccTLDs are often contrasted with gTLDs. ccTLDs sometimes have restrictive 'presence' or 'close association' registration requirements whereas gTLDs tend to be open to registrants across the globe.

## **CPR INSTITUTE FOR DISPUTE RESOLUTION**

Alternative dispute resolution body authorised to provide arbitration under the ICANN Uniform Dispute Resolution Policy (UDRP). [http://www.cpradr.org/ICANN\\_Menu.htm](http://www.cpradr.org/ICANN_Menu.htm)

## **LORRIE FAITH CRANOR**

Researcher with AT&T, author of works on network security and privacy (eg P3P) and member of 2000 ICANN Election Committee <http://lorrie.cranor.org>

## **GREG CREW**

ICANN Director to 2000 and Chair of 2000 ICANN Election Committee, Mr Crew is a former Chief Executive Officer of Mercury Communications and Chief Operating Officer of Hong Kong Telecommunications.

## **PIERRE DANDJINOU**

Member of ICANN At-Large Advisory Committee (ALAC), member of regional registry AFRINIC, Chair of the Internet Society's Benin Chapter and member of the Advisory Committee of the Global Internet Policy Initiative (GIPI).

## **PHILIP DAVIDSON**

ICANN Director 1999 to 2002 (selected by the Protocol Supporting Organization), Mr Davidson was former Head of BT Group Standards and a member of the European Telecommunication Standards Institute. He resigned from the ICANN Board on retirement from telecommunications group, BT. <http://www.icann.org/biog/davidson.htm>

## **DELEGATION**

Authorisation, originally by Jonathan Postel, of responsibility for management of gTLDs and ccTLDs. Delegation (and re-delegation) is a matter of significant contention. Most ccTLD delegates do not have a formal agreement with ICANN or with the respective national government; some are located outside a national jurisdiction; some operate on a wholly or partly commercial basis; there have been ongoing disputes about who should be the delegate for particular ccTLDs. Australia's .au ccTLD was formally re-delegated to .auDA on 30 October 2001. <http://www.auda.org.au/about/news/2001103002.html>.

## **DEUTSCHE TELEKOM**

German telecommunications group, with major fixed-line, mobile, ISP and ICH interests, that provided financial support (US\$200,000 loan in 1999) for ICANN during the start-up phase.

## **MOUHAMET DIOP**

ICANN Director and member of ICANN Internationalised Domain Names (IDN) Committee 2001.

## **CHRIS DISSPAIN**

Chief Executive of .au Domain Administration Ltd, the manager of the Australian ccTLD. <http://www.auda.org.au/about/officers.htm>.

## **DOMAIN NAME**

An addressing construct used for identifying and locating devices on the Internet. Domain names provide a system of easy-to-remember Internet addresses, which can be translated by the DNS into the numeric addresses, IP numbers, used by the network. A domain name is hierarchical and often conveys information about the type of entity using the domain name. A domain name is simply a label that represents a domain, which is a subset of the total domain name space. Domain names at the same level of the hierarchy must be unique. Thus, for example, there can be only one .com at the top level of the hierarchy and only one networksolutions.com at the next level of the hierarchy.

## **DOMAIN NAME REGISTRATION INDUSTRY (DNRI)**

Commercial and other entities engaged in the provision of domain name registry, registration and ancillary services such as domain name registration dispute arbitrators and domain name valuers.

## **DOMAIN NAME SUPPORTING ORGANIZATION (DNSO)**

Prior to 15 December 2002 the DNSO was a Supporting Organization of ICANN (that is, one of the entities that assist, review and develop recommendations on Internet policy and structure regarding specific

areas of ICANN's activity and that facilitate diverse international participation in technical management of the Internet). It advised the ICANN Board regarding DNS policy issues. The DNSO comprised a Names Council consisting of representatives of Constituencies elected by those Constituencies and a General Assembly consisting of all interested individuals and entities. Its responsibilities are now shared by the ccNSO and GNSO. <http://www.icann.org/dns/dns.htm>

## **DOMAIN NAME SYSTEM (DNS)**

A distributed database of information that is used to translate IP numbers into domain names which find devices connected to the Internet. People working on computers around the globe maintain their specific portion of this database and the data held in each portion of the database is made available to all computers and users on the Internet. The DNS comprises computers, data files, software and people working together.

## **DRAFTING COMMITTEES**

Drafting committees are volunteer groups of the Domain Name Supporting Organization General Assembly members established by the DNSO Names Council to carry out its consensus-building responsibility. Each recognised DNSO Constituency is able to participate in any drafting committee or other taskforces.

## **PAVAN DUGGAL**

Member of 1998 ICANN Advisory Committee on Membership.

## **ESTHER DYSON**

Director and Chair of ICANN to 2000. Member of ICANN At-Large Advisory Committee (ALAC) 2003. New economy entrepreneur, former securities analyst and reporter for *Forbes* magazine, founder of the Russian Software Market Association, Director of the Electronic Frontier Foundation and Global Business Network, author of *Release 2.0*. <http://www.edventure.com>

## **CLEMENT DZIDONU**

A Professor in the Computer Science Department at Ghana's Valley View University and consultant to the United Nations Development Programme, Mr Dzidonu has been a member of the ICANN At-Large Advisory Committee (ALAC) from 2003. He was a member of the NAIS group and authored the NAIS Africa Regional Study.

## **ELECTRONIC NUMBERING (ENUM)**

Proposed electronic mailbox scheme to integrate voice, facsimile and e-mail messages. ITU discussion of ENUM technology is found at <http://www.itu.int/osg/spu/enum/index.html>

## **ROBERT ELZ**

Melbourne University information technology specialist who received delegation for the .au ccTLD from Jonathan Postel. Responsibility for .au was assumed by the .au Domain Administration Ltd (.auDA) in October 2001.

## **PATRIK FÄLTSTRÖM**

Member of 2000 ICANN Election Committee

## **BRET FAUSETT**

US networking specialist and ICANN critic.  
<http://www.lextext.com/icann/>

## **FRANK FITZSIMMONS**

An ICANN Director 1998 to 2002.  
<http://www.icann.org/biog/fitzsimmons.htm>

## **KEN FOCKLER**

An ICANN Director from 1999 to 2001 (selected by the ASO) and member of 2000 ICANN Election Committee, Mr Fockler was a former Director of ARIN and CANARIE (a counterpart of AARNet), first Chair and President of the Canadian Association of Internet Providers, a member of the 1999 WIPO domain names study and President of CA\*Networking Inc.  
<http://www.icann.org/biog/fockler.htm>.

## **FRANCE TELECOM**

French telecommunications group that provided financial support for ICANN during the start-up phase.

## **MICHAEL FROMKIN**

Professor of Law at University of Miami Law School. Attracted attention as a writer on Internet governance, particularly as a critic of ICANN. He is a co-founder and animator of the ICANNWatch site. <http://www.law.tm>

## **MICHAEL GEIST**

Professor of Law at University of Ottawa Law School, CIRA Director, analyst of ccTLD practice and author of influential jurimetric studies regarding the UDRP. <http://www.michaelgeist.com>

## **GENERAL ASSEMBLY (GA)**

The General Assembly was an open forum for participation in the work of the ICANN DNSO, now replaced by the ccNSO and the GNSO. It was



expected that participants in the GA would be individuals with a knowledge of and an interest in issues pertaining to the areas for which the DNSO had primary responsibility, and willingness to “contribute time, effort and expertise to the work of the DNSO, including work item proposal and development, discussion of work items, draft document preparation, and participation in research and drafting committees and working groups”.

### **GENERIC NAMES SUPPORTING ORGANIZATION (GNSO)**

The ICANN GNSO is one of three Supporting Organizations entities that assist, review and develop recommendations on Internet policy and structure regarding specific areas of ICANN’s activity and that facilitate diverse international participation in technical management of the Internet. It names three Directors to the ICANN Board. The GNSO is the successor to those responsibilities of the DNSO that relate to the gTLDs. <http://gnso.icann.org>

### **GENERIC TOP LEVEL DOMAIN (gTLD)**

A generic top level domain is a top level domain that is open to registrants around the world in contrast to country code top level domains that are sometimes restricted to registrants located in a particular country or region. .com, .net and .org are considered to be generic top level domains. Recent unsponsored additions to the gTLD space include .biz, .info, .pro and .name. Sponsored additions are .museum, .aero and .coop.

### **GLOBAL INTERNET LIBERTY CAMPAIGN (GILC)**

Described by Tim Berners-Lee in *Weaving the Web* as “a group that has been laudably vocal in support of individual rights on the Net (although occasionally tending to throw out the baby with the bathwater)”.

### **GLOBAL INTERNET PROJECT**

US-based advocacy group that represents major corporate interests.

### **GOVERNMENTAL ADVISORY COMMITTEE (GAC)**

The GAC comprises appointed representatives of national governments, international government organizations and distinct economies. Its function is to advise the ICANN Board on matters of concern to governments. It operates as a forum for the discussion of government concerns and interests, including consumer interests. As an advisory body the GAC has no legal authority to act for ICANN and its advice is not binding on the organization. GAC meetings typically attract representatives of less than 30 governments and international organizations. Dr Paul Twomey, appointed as chief executive of ICANN in 2003, was formerly Chair of the GAC. <http://gac.icann.org/>

## **GREEN PAPER**

*A Proposal to Improve Technical Management of Internet Names & Addresses* was prepared by the US Department of Commerce (DoC) as a means of making recommendations to and receiving comments from the Internet community about the management of the DNS. The Green Paper was released in January 1998, with a comment period during which DoC received a small number of comments from interested parties around the world. In response to those comments the DoC published the policy statement referred to as the White Paper (see [www.ntia.doc.gov/ntiahome/domainname/dnsdrft.htm](http://www.ntia.doc.gov/ntiahome/domainname/dnsdrft.htm)). See Section F – Supplementary Material.

## **GTE INTERNETWORKING**

Arm of US telecommunications group (now part of Verizon) that provided financial support for ICANN during the start-up phase.

## **RYOZO HAYASHI**

Member of ICANN Advisory Committee on Independent Review.

## **SCOTT HEMPHILL**

Member of the ICANN Independent Review Committee 2001.

## **GEOFF HUSTON**

Australian academic and later Telstra executive who formerly administered .au 2LDs and the AUNIC registry database on behalf of Robert Elz. <http://www.potaroo.net>

## **HOST**

Also called a name server. A computer that has both the software and the data (zone files) needed to resolve domain names to IP numbers.

## **XUE HONG**

A member of the ICANN At-Large Advisory Committee (ALAC) from 2003, Dr Hong is an academic, senior research fellow of the Chinese Academy of Social Science, chair of the Asia-Pacific Top Level Domains Association's Dispute Resolution Policy Committee and Chair of the Policy Commission of the International Forum for Internet Keyword.

## **IBM**

US-based computer hardware, software and services group that provided financial support for ICANN during the start-up phase.

## **ICANN/NSI REGISTRY AGREEMENT**

An agreement executed on 10 November 1999 between ICANN and Network Solutions Inc (NSI) regarding the terms and conditions under which NSI was authorised to be the exclusive registry for all second-level domain names in the .com, .net and .org gTLDs.  
<http://www.icann.org/nsi/nsi-agreements.htm>

## **INDIVIDUAL DOMAIN NAME OWNERS CONSTITUENCY (IDNO)**

Group with links to the Alternative Root industry and critical of ICANN's stance on intellectual property and, more broadly, governance of the Internet. The group has unsuccessfully sought recognition by the ICANN Board and Supporting Organizations as a new constituency. Karl Auerbach served as its spokesman at the 1999 ICANN meeting.  
<http://www.democracy.org.nz>

## **INSTITUT NATIONAL DE RECHERCHE EN INFOMATIQUE ET AUTOMATIQUE (INRIA)**

French national information technology research laboratory that co-hosts the W3C.

## **INTERNATIONAL AD HOC COMMITTEE (IAHC)**

A US-based coalition of participants from the broad Internet community, working to satisfy the requirement for enhancements to the Internet's global Domain Name System. Key members were the Internet Society, IANA, the Internet Architecture Board, US Federal Networking Council, International Telecommunication Union, International Trademark Association and World Intellectual Property Organization. Its participants were broadly at odds with those of the IFWP. The IAHC was dissolved in 1997, being replaced by the gTLD-MoU Policy Oversight Committee and the ICANN DNSO. <http://www.iahc.org> and <http://www.gtld-mou.org>

## **INTERNATIONAL ASSOCIATION OF TOP LEVEL DOMAINS (IATLD)**

The IATLD was "founded to give voice to the concern that ICANN would make changes to the global governance structure of the domain name system without consulting the men and women from around the world who have built this system—the TLD administrators". Its 27 members are ccTLD managers, primarily from former Soviet Bloc republics such as Turkmenistan, from dependencies such as Heard & McDonald Islands and Pacific states. Several of those managers are in dispute with their local national/territorial government. <http://www.iatld.org>

## **INTERNATIONAL CHAMBER OF COMMERCE (ICC)**

A Paris-based global business advocacy group, the ICC is promoted as "the voice of world business championing the global economy as a force for economic growth, job creation and prosperity" and as "the main business partner of the United Nations". It has been influential in the development of international business-to-business and business to

consumer alternative dispute resolution regimes and EDI or other business communication standards. The ICC is aligned with the World Intellectual Property Organization and content industry bodies as an advocate of protection for intellectual property. <http://www.iccwbo.org>

### **INTERNATIONAL FEDERATION OF THE PHONOGRAPHIC INDUSTRY (IFPI)**

A London-based global trade group representing the music recording industry, with around 1,500 members. IFPI is broadly aligned with the World Intellectual Property Organization as an advocate of the rights of intellectual property owners. Its stance regarding ICANN and—more broadly Internet governance—is strongly influenced by the Recording Industry Association of America. <http://www.ifpi.org>

### **INTERNATIONAL FORUM ON THE WHITE PAPER (IFWP)**

An ad-hoc coalition organised in June 1998 to create an international forum that would respond to White Paper recommendations regarding establishment of what became ICANN. It embodied a minimalist view of ICANN's powers and responsibilities. Promoted as an "ad hoc coalition of professional, trade and educational associations", the IFWP sought to sponsor a "framework of coordinated international meetings, to be held around the world, at which stakeholders will discuss the transition to private sector management of the technical administration of Internet names and numbers". It appears to have attracted around 1,000 participants but went into abeyance with the establishment of ICANN. <http://list.ifwp.org>

### **INTERNATIONAL INTELLECTUAL PROPERTY ALLIANCE (IIPA)**

A coalition of US copyright industry organizations (in particular the software, music and film/video industries) established in 1984 to encourage international protection of intellectual property, in particular through agreements such as TRIPS, bilateral trade negotiations (including Section 201 watch-listing by the US Federal Trade Representative) and representations to bodies such as ICANN. The IIPA is a participant in ICANN Intellectual Property Constituency discussions. <http://www.iipa.com>

### **INTERNATIONALISED DOMAIN NAMES (IDN)**

Second level domain names in non-ASCII character sets, for example, in Chinese, Japanese, Arabic and Portuguese. The technical challenges for development of standards regarding such multilingual names are substantial; work on IDN reflects uptake of the Internet by users in Asia, the Middle East and elsewhere. Although attracting little attention from Western civil society groups, ICANN activity regarding IDNs has been controversial because some schemes have been perceived as advantaging particular commercial interests.

## **INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)**

Geneva-based agency of the United Nations, concerned to harmonise and foster the development of national, regional and international standards. It is influenced by government and industry standards bodies in the advanced economies, for example, the US American National Standards Institute (ANSI), the International Electronic Commission (IEC) and European Telecommunications Standardization Institute (ETSI). The ISO 3166 Maintenance Agency is responsible for the two-character alphabetical code (3166-1 list) used for most ccTLDs. <http://www.iso.int>

## **INTERNATIONAL TELECOMMUNICATION UNION (ITU)**

The ITU is a Geneva-based agency of the United Nations concerned with the coordination by governments and the private sector of global telecommunication networks and services. Its relationship with ICANN is similar to that of the World Intellectual Property Organization and the World Trade Organization, memorably characterised by Peter Drahos as a tango where no one is sure who'll end up on top. The ITU was a key member of the IAHC and signatory to the gTLD-Memorandum of Understanding, participates in ICANN's Governmental Advisory Committee and hosted the 2003 international workshop on ccTLDs. Its stance on ICANN reflects differing perceptions of DNS as management of a global numbering resource that has escaped from traditional telecommunication service providers and regulators. <http://www.itu.int>

## **INTERNATIONAL TRADEMARK ASSOCIATION (INTA)**

A global organization of trademark owners and advisors dating from 1878, headquartered in New York, deploying substantial expertise. INTA has been instrumental in the development of national trademark legislation and enforcement standards. It has been prominent in regional and global trade negotiations (for example, GATT and TRIPS) and in the ICANN Trademark, Intellectual Property & Anti-Counterfeiting Interests Constituency. <http://www.inta.org>

## **INTERNET ARCHITECTURE BOARD (IAB)**

Initially established as the Internet Activities Board, the IAB is a non-government and non-commercial body "of researchers and professionals with a technical interest in the health and evolution of the Internet system". It oversees the Internet standards-making process (in particular through direction to the Internet Engineering Task Force). The IAB is formally the "coordinating committee for Internet design, engineering and management". <http://www.iab.org>

## **INTERNET ASSIGNED NUMBERS AUTHORITY (IANA)**

Originally established by Jonathan Postel and which oversees registration for various Internet Protocol parameters, such as port numbers, protocol and enterprise numbers, options, codes and types. The IANA function is currently located at the Information Sciences Institute at the University of Southern California in Marina Del Rey and functions under the direction of ICANN. ICANN has responsibility for the IANA function under a contract

with the US Department of Commerce in effect from 9 February 2000. Under ICANN, the IANA continues to distribute addresses to the Regional Internet Registries, to coordinate with the IETF and others regarding the assignment of protocol parameters and to oversee the operation of the DNS. <http://www.iana.org>

### **INTERNET CONTENT HOST (ICH)**

An entity that specialises in hosting online content; in particular ICH's host web servers on a commercial basis that contain hypertext, video, music and other files accessed over the Internet. Many Internet Service Providers serve as ICHs.

### **INTERNET CORPORATION FOR ASSIGNED NAMES AND NUMBERS (ICANN)**

An international not-for-profit private sector organization created to coordinate four key functions for the Internet: the management of the Domain Name System, the allocation of IP address space, the assignment of protocol parameters and the management of the root server system. Milton Mueller's 2002 *Dancing the Quango* characterises ICANN as "an emergent international regulatory regime, analogous in its powers and modes of regulation to the [US] Federal Communications Commission, except that its authority is global rather than national in scope". <http://www.icann.org>

### **INTERNET ENGINEERING TASK FORCE (IETF)**

An international voluntary body consisting of network designers, engineers, researchers, vendors and other interested individuals who work together to address and resolve technical and operational problems on the Internet and develop Internet standards and protocols. Membership is open to interested individuals. The IETF was formed by the IAB and meets three times per year. The bulk of collaboration and work takes place on the various mailing lists maintained by its participants. <http://www.ietf.org>

### **INTERNET**

The global network of networks, based on two standard protocols, Internet Protocol and Transmission Control Protocol, concerned with the exchange of data between computers and other devices (for example some personal digital assistants and mobile phones) through wire and wireless infrastructure. The World Wide Web is a subset of the Internet and, as of April 2002, probably accounts for under half the data transmitted over the Internet.

### **INTERNET PROTOCOL (IP) NUMBER**

A unique numeric identifier used to specify hosts and networks. Internet Protocol (IPv4) numbers are part of the global standardized scheme for identifying devices that are connected to the Internet. Technically speaking, IP numbers are 32 bit addresses that consist of four octets.

They are expressed as four numbers between 0 and 255, separated by periods, for example 198.41.0.52. IP allocation for the Americas, the Caribbean and sub-Saharan Africa is currently handled by ARIN. IP allocation for Europe is currently handled by RIPE. IP allocation for the Asia-Pacific region is currently handled by APNIC. IPv6 numbers are less human friendly and reinforce the need for memorable domain names.

### **INTERNET SERVICE PROVIDER (ISP)**

An entity that provides Internet connectivity, using fixed/wireless infrastructure that it owns or that is leased from another entity (typically a telephone company or cable television service operator). For most consumers the ISP is their gateway to cyberspace. Many ISPs host Internet content, in particular web sites, and offer other services such as a retail presence for domain registrars. Major ISPs such as WorldCom, AOL, Deutsche Telekom and UUNET generate significant revenue (from several million customers, sometimes located over several continents) and were instrumental in ICANN's early budget grants through unsecured loans and other assistance.

### **INTERNET SOCIETY (ISOC)**

An international organization, which includes national and local chapters, such as Australia's ISOC-AU, concerned with global cooperation and coordination of the Internet. Membership of ISOC is open to interested individuals. It has around 17,000 members around the world as of March 2003 with significant growth since 2000. The organization has been characterised as a trustee of the Internet, encapsulated in its slogan that "the Internet is for everyone", and an embodiment of online civil society. Most members are believed to have a technical background.  
<http://www.isoc.org>

### **INTERNET NETWORK INFORMATION CENTRE (INTERNIC)**

InterNIC was the name given to a project that originated in 1993 under a cooperative agreement with the NSF enabling Network Solutions Inc to provide domain name registration services in .com, .net, .org and .edu. The InterNic name is a registered service mark of the US Department of Commerce (initially registered by AT&T) and is no longer used by Network Solutions for its services. InterNic is currently the name of a web site of the US Department of Commerce to provide public information regarding Internet domain name registration services.  
<http://www.internic.net>

### **IP**

see Internet Protocol Number and IP Address. The initials are often used as shorthand for intellectual property rights (IPR)

### **INTELLECTUAL PROPERTY RIGHTS (IPR)**

Legislation and practice regarding respect for creators of and commercial exploitation of the property of the mind. Intellectual property embraces

industrial property, for example, trademarks and patents and copyright. The global intellectual property regime consists of a set of international agreements that seek to harmonise national legislation concerned with intellectual property practice. For example, registration requirements and provisions that seek to balance the rights of copyright owners and users within individual national jurisdictions. Disagreements about IPR have been a central feature of debate about ICANN's responsibility, operation and legitimacy. ICANN has been a theatre for the interaction of hopes and anxieties regarding such matters as free speech, the nature of brands in a digital economy and the viability of models for the online distribution or protection of music and other content.

### **OLIVIER ITEANU**

Member of the ICANN Independent Review Committee 2001.

### **JONES, DAY, REAVIS & POGUE**

US corporate law firm used by ICANN. *See also Joe Sims & Louis Touton*

### **KANCHANA KANCHANASUT**

Member of 1998 ICANN Advisory Committee on Membership.

### **DANIEL KAPLAN**

Member of 1998 ICANN Advisory Committee on Membership.

### **MASANOBU KATOH**

ICANN Director (At-Large) from 2000, Mr Katoh is an executive with the Fujitsu information technology group and Chair of the Electronic Commerce Committee of the Forum for the Global Information Infrastructure (GIIC) and Internet Law & Policy Forum (ILPF). He was formerly the Asia-Pacific representative of the business constituency on the Names Council of the DNSO. <http://www.mkatoh.net>

### **ETHAN KATSH**

US legal scholar and member of ICANN Advisory Committee on Independent Review.

### **HANS KLEIN**

US academic at the University of Syracuse and one of the animators of the NGO & Academic ICANN Study (NAIS).

### **JOHN KLENSIN**

AT&T engineer, Member of the 2000 ICANN Nominating Committee and of ICANN IDN Committee 2001. Author of influential IETF Requests for



Comment found at  
<http://www.networksorcery.com/enp/authors/KlensinJohnC.htm>

### **HANS KRAAIJENBRINK**

ICANN Director from 1998, member of 2000 ICANN Election Committee, senior executive with the Netherlands posts and telecommunications group KPN. Also former executive in the Netherlands public service and member of the Executive Board of the European Telecommunications Network Operators association (ETNO).

### **SANG-HYON KYONG**

An ICANN Director from 2000 (selected by the ASO), a former Minister of Information & Communication, former senior executive with Korea Telecom and President of Korea's Electronics & Telecommunications Research Institute, Dr Kyong is a Professor of telecommunications management & policy and Governor of the International Council for Computer Communication.

### **SIEGFRIED LANGENBACH**

Member of 1998 ICANN Advisory Committee on Membership. Active in Registrars' Constituency.

### **LATIN AMERICAN & CARIBBEAN INTERNET ADDRESSES REGISTRY (LACNIC)**

A non-profit membership organization and one of four Regional Internet Registries (RIRs) responsible for administration and registration of IP addresses in Central and South America. <http://lacnic.net>

### **LAWRENCE LESSIG**

US legal scholar whose writings about governance of cyberspace and intellectual property, in particular *Code and Other Laws of Cyberspace* (1999), has influenced debate about ICANN and domain name administration. <http://www.lessig.org/>

### **CHING-YI LIU**

Member of the ICANN Independent Review Committee 2001.

### **STUART LYNN**

ICANN President and Chief Executive Officer 2001-03. Dr Lynn held senior research and administrative positions with IBM, Rice University, Cornell University and the University of California, Berkeley. He served as an initial Director of the US national Internet2 consortium, as CIO of the University of California System and first President and Chair of California's CENIC academic networking consortium.

## **IRA MAGAZINER**

Author and former senior policy advisor in the Clinton Administration, where he was closely associated with proposals to restructure the US health system and with the transition to non-government management of the DNS.

## **ANDREW McLAUGHLIN**

Interim ICANN Secretary (1999), Chief Financial Officer (1999-2001), Vice-President 2001-2002. Also a Fellow at the Berkman Center for Internet and Society. <http://cyber.law.harvard.edu/mclaughlin.html>

## **MARKLE FOUNDATION**

Headed by former Clinton Attorney-General nominee Zöe Baird and funds activity regarding the ICANN At-Large Membership and Council amongst other projects. For Markle Foundation, <http://www.markle.org> and for Ms Baird, [http://www.markle.org/about/\\_about\\_staffbio\\_baird.stm](http://www.markle.org/about/_about_staffbio_baird.stm)

## **MCI WORLDCOM**

US-based global telecommunications group that provided financial support (US\$500,000 loan in 1999) for ICANN during the start-up phase.

## **MELBOURNE IT (MIT)**

Australian domain name registrar that has expanded its market to achieve a global presence. Spun-off from University of Melbourne as sole registrar for the .com 2LD within Australia's .au space. Also sells .com, .net, .org and .biz gTLDs. It is consistently ranked in the top ten gTLD registrars. Introduction of competition in registrar services following the establishment of .auDA means that Melbourne IT is no longer the sole .com.au registrar, although its market share is believed to be over 40%. <http://www.melbourneit.com.au>

## **MEMBERSHIP ADVISORY COMMITTEE (MAC)**

ICANN committee concerned with development of At-Large Constituency. <http://www.icann.org/committees/membership/>

## **MEMORANDUM OF UNDERSTANDING (MOU)**

1998 Agreement between US Department of Commerce (DoC) and ICANN recognising the latter and dealing with the transition of responsibility for technical coordination of some Internet functions from the US Government to the private sector. The MOU involves provision by ICANN of reports to the DoC concerning its activities. <http://www.icann.org/general/agreements.htm>

## **METADATA**

Literally information about information, metadata on the Web consists of information embedded within or associated with an online resource, such as a Web page or music file, to identify that resource. It is used by some search engines to find online resources and rank those resources when displaying search results. There are no universally accepted standards for metadata structures and quality; comprehensive metadata is found on only a small portion of the Web, primarily sites maintained by major government and cultural institutions.

## **STEVEN METALITZ**

Intellectual property advocate and Chair of ICANN Trademark, Intellectual Property & Anti-Counterfeiting Interests Constituency.

## **MICROSOFT**

US software group, with a dominant presence in the personal computer and browser markets, that provided financial support for ICANN during the start-up phase.

## **MOTION PICTURE ASSOCIATION (MPA)**

The MPA, under high-profile executive Jack Valenti, serves as a trade body for the international motion picture and video production and distribution industry. The MPA has operated in tandem with the Recording Industry Association of America in identifying intellectual property as a commodity of national importance, requiring new national and global legislation and strengthened practice regarding the Internet. Its concerns embrace both illicit online dissemination of content and perceptions that its member's interests are being damaged through domain names, for example, names that tarnish brands or signal that content is available for illicit use. Those concerns have been reflected in US Section 201 Watchlisting. <http://www.mpaa.org>

## **MILTON MUELLER**

Syracuse University-based Dr Mueller is the author of the influential *Ruling The Root* and a range of studies about ICANN, the UDRP and Internet governance. <http://istweb.syr.edu/~mueller/>

## **ANDY MÜLLER-MAGUHN**

ICANN Director (At-Large, Europe) from 2000, Mr Müller-Maguhn is a journalist and member of Germany's Chaos Computer Club. <http://www.ccc.de/%Eandy/>

## **JUN MURAI**

An ICANN Director from 1998 and Chair of ICANN Root Server System Advisory Committee, Dr Murai is a Japanese academic (computer science

at Keio University), President of JPNIC, Vice President of the Japanese Internet Association and Vice Chair of the Internet Society's Japan Chapter.

### **CHARLES MUSISI**

Member of 2003 ICANN Nominating Committee.

### **NAMESECURE**

US registrar that provided financial support for ICANN during the start-up phase.

### **NAME SERVER**

Also called a host. A computer that has both the software and the data (zone files) needed to resolve domain names to IP numbers.

### **NAME SERVICE**

Providing individuals and organisations with domain name-to-Internet Protocol number resolution by maintaining and making available the hardware, software and data needed to perform that function. Many ISPs operate name servers and provide their customers with name service when they register a domain name. Most individuals are not in a position to operate a name server on their own and therefore make arrangements for name service with an ISP or similar organisation.

### **NAMES COUNCIL (NC)**

The Names Council is a part of the DNSO, one of three supporting Organizations for ICANN. It consists of three representatives from each DNSO constituency recognised by the ICANN Board, with the temporary exception of the gTLD Registry Constituency that currently only has one representative. The NC is responsible for management of the consensus building process of the DNSO.

### **NATIONAL ARBITRATION FORUM (NAF)**

US alternative dispute resolution body authorised to provide arbitration services under ICANN's UDRP.

### **NATIONAL OFFICE FOR THE INFORMATION ECONOMY (NOIE)**

Australian Federal Government agency within the portfolio of Communications, Information Technology & the Arts, Minister Senator Richard Alston. NOIE is charged with facilitation of the Internet economy through information sharing, grants programs and development of an appropriate regulatory framework that encompasses matters such as online accessibility, censorship, privacy and security, whether independently or in conjunction with agencies inside/outside the portfolio. Formerly headed by Dr Paul Twomey, NOIE facilitated the establishment

of .auDA and formerly provided the secretariat for the GAC.  
<http://www.noie.gov.au>

## **NATIONAL TELECOMMUNICATIONS & INFORMATION ADMINISTRATION (NTIA)**

An agency of the US Federal Department of Commerce (DoC), the Executive Branch's principal voice on domestic and international telecommunications and information technology issues. NTIA is the DoC agency that manages the Cooperative Agreement with Network Solutions Inc and the MoU with ICANN <http://www.ntia.doc.gov>

## **NETSCAPE**

US browser company, now part of the AOL Time Warner conglomerate, that provided financial support for ICANN during the start-up phase. Netscape's dominance of the global browser market has shrunk to around 6%. <http://www.netscape.com>

## **NETWORK SOLUTIONS INC (NSI)**

An arm of the network security and domain name services group, VeriSign, that includes gTLD and ccTLD Registry and Registrar operations. NSI was formerly the monopoly registry operator for the .com, .org and .net gTLDs. It was acquired by VeriSign in 2000 for around US\$21 billion and included in a subsequent write down of assets by US\$16 billion after disappointment over ownership of 'cyberspace's largest toll booth'. Criticisms of NSI-VeriSign's exploitation of its privileged position were echoed in industry comments about MelbourneIT, its counterpart in the .au ccTLD. <http://www.verisign.com>

## **NEW.NET**

New.Net has been the leading commercial Alternative Root scheme. Established by high-profile US incubator IdeaLab, it sought to generate revenue by spawning a wide range of proprietary gTLDs (eg .law, .med, .mp3 and .xxx) that are independent of what ICANN President Stuart Lynn characterised as the 'Unique Authoritative Root' and may thus involve problems with domain name collisions and non-receipt of electronic mail. Ongoing uptake of those gTLDs by individuals and organizations is uncertain, irrespective of New.Net's release of a paper on *The Role of Market-Based Principles in Domain Name Governance*. <http://www.new.net>

## **HUU DONG NGUYEN**

Member of 2000 ICANN Election Committee.

## **NOMINET**

Oxford-based administrator of the .uk ccTLD, formerly headed by Dr Willie Black. Nominet is the British counterpart of Australia's .auDA and

Canada's CIRA and is a non-government organisation that aspires to represent the UK Internet community in managing the national domain space. In contrast to .auDA, it does not have a formal agreement with ICANN, has been concerned to assert its independence of both ICANN and the UK government, and has been publicly critical of ICANN as a body that is overly influenced by gTLD (implicitly US) interests at the expense of ccTLD (particularly European ccTLD) managers.  
<http://www.nominet.org.uk>

### **NON-COMMERCIAL DOMAIN NAME HOLDERS CONSTITUENCY (NCDNHC)**

The NCDNHC was a constituency group of the ICANN Domain Name Supporting Organization, reflecting expectations that the DNSO should encompass the views and interests of not-for-profit organisations and individual registrants. Those expectations were evident in statements by the Internet Society, in successive At-Large initiatives and in arguments by independent bodies, however representative, such as IDNO. As part of the ICANN structural changes announced in December 2002 the NCDNHC is being rebadged as the Non-Commercial Users Constituency (NCUC) for the GNSO. <http://www.ncdnhc.org>

### **NOVELL**

US networking company that provided financial support for ICANN during the start-up phase. As first major vendor of networking software for personal computers, Novell drove move towards PCs on standalone networks as a critical step towards widespread Internet use.

### **NTT COMMUNICATIONS**

Japanese telecommunications group that provided financial support for ICANN during the start-up phase.

### **OPEN ROOT SERVER CONFEDERATION (ORSC)**

An informal organization of Alternative Root operators and advocates.

### **YUN PARK**

Member of the ICANN Independent Review Committee 2001.

### **ALEJANDRO PISANTY**

Director and Vice-Chair (from 2000) of ICANN. Dr Pisanty is Director of Computing Services at the National Autonomous University of Mexico and a Professor in the Graduate School of Chemistry. He is Chair of the Mexican Internet 2 Consortium and President of the Internet Society's Mexico Chapter. He was selected for the ICANN Board by the former DNSO.

## **JORGE PLANO**

Member of ICANN Advisory Committee on Independent Review.

## **ELISABETH PORTENEUVE**

Member of ICANN Internationalised Domain Names (IDN) Committee 2001. Very active in the ccTLD Constituency for .fr and other French speaking country code administrators.

## **JONATHAN POSTEL**

Jon Postel, remembered in Vint Cerf's October 1998 RFC (2468) as "our Internet Assigned Numbers Authority, friend, engineer, confidant, leader, icon and ... first of the giants to depart from our midst ... the foundation on which our every web search and e-mail was built" and, by a less reverent observer, as "the ultimate übergeek". Postel was a US computer engineer at the USC Information Sciences Institute who served as the administrator of IANA. Dr Postel was a founding member of the Internet Architecture Board and of the Internet Society (of which he was also a Trustee), custodian of the .us ccTLD and editor of the RFC series. Dr Postel delegated responsibility for ccTLDs to respective trustees such as Australia's Robert Elz and was closely involved in the discussions that led to the establishment of ICANN.

## **PROTOCOL SUPPORTING ORGANIZATION (PSO)**

The former ICANN Supporting Organization concerned with "the assignment of unique parameters for Internet Protocols, the technical standards that let computers exchange information and manage communications over the Internet". The PSO's members were standards development organizations. The PSO ceased to operate, as part of the 15 December 2002 ICANN structural reforms, and its members now provide advice to ICANN with facilitation by the Technical Liaison Group.  
<http://www.pso.icann.org>

## **PSINET**

A major US Internet service provider (acquired by Cogent following the dot-com crash) that provided financial support for ICANN during the start-up phase. <http://www.psinet.com>

## **NII QUAYNOR**

ICANN Director (At-Large, Africa Region) of ICANN from 2000. Dr Quaynor gained engineering and computer science qualifications in the US, working for Digital Equipment before returning to Ghana where he was active in the telecommunications industry and established the Computer Science Department at the University of Cape-Coast. Among other affiliations he is Chair of the Organization of African Unity Internet Task Force, a member of the ITU Telecom Board, President of Internet Society's Ghana Chapter and Chair of AfriNic. He was a member of 1998

ICANN Advisory Committee on Membership.  
<http://www.ncs.com.gh/Quaynor.htm>

## **QUILCAP**

New York-based high technology fund that provided financial support for ICANN during the start-up phase.

## **REALNAMES INC**

A US keywords service, matching keywords to IP addresses and bypassing the domain names that ceased operation in 2002. Its demise has been attributed by some observers to lack of sustained venture capital interest and indifference by Microsoft, owner of the dominant web browser, as incorporation of RealNames into Microsoft's Internet Explorer was instrumental for the scheme's success. <http://www.realnames.com>

## **RECONSIDERATION COMMITTEE**

An ICANN Committee concerned with review of policy and administrative decisions by the ICANN Board, for example the publication of policy documents and the decision to award a new gTLD. Review poses particular governance challenges, given ICANN's status as an international non-government Organization that is not established by a global agreement to which most governments are signatories on a multi-lateral basis.

## **RECORDING INDUSTRY ASSOCIATION OF AMERICA (RIAA)**

Headed by Hilary Rosen, the RIAA is a trade group that represents the US music recording industry and embraces the dominant twenty groups across the globe. The RIAA, along with the film and video industry MPAA, has sought to position itself as the vanguard of the 'copyright-industrial complex' in protection of copyright from illicit online use, employing both intellectual property code and software code against intermediaries and end-users. Advocacy by the RIAA was instrumental in passage of the US *Digital Millennium Copyright Act* and *Anti-Cybersquatting Protection Act*. The RIAA has been a presence at most ICANN meetings and active within the Trademark, Intellectual Property & Anti-Counterfeiting Interests Constituency. <http://www.riaa.org>

## **REGIONAL INTERNET REGISTRIES (RIRs)**

The four regional registries, APNIC, ARIN, RIPE and LACNIC, are non-profit organisations responsible for distributing IP addresses on a regional level to Internet service providers and local registries. They accordingly serve as intermediaries between those entities and IANA.

## **REGISTRANT**

The individual or organisation that registers a specific domain name with a registrar. That individual or organisation holds the right to use the specific domain name for a specified period of time, provided certain



conditions are met and any registration fees are paid. The person or organisation is the legal entity bound by the terms of the domain name registration agreement with the registrar, whether directly or through a registrar's reseller. For example, .auDA's registrar agreement and the mandatory Code of Practice can be found at <http://www.auda.org.au/policy/>.

## **REGISTRAR**

A domain name registrar provides name registration services to domain name registrants, serving as the liaison between the domain name registry and the registrant. The registrar database contains customer information in addition to the DNS information contained in the Registry database. Registrars process name registrations for Internet end-users and then send the necessary DNS information to a Registry for entry into a centralised Registry database and ultimate propagation over the Internet. Most gTLDs and ccTLDs involve multiple registrars. Many registrars use agents, such as ISPs, website builders and lawyers, in retailing their services to registrants. ICANN's accredited registrars are listed at <http://www.icann.org/registrars/accredited-list.html>.

## **REGISTRAR WHOIS**

A searchable database maintained by registrars that contains information about networks, networking organisations, domain names and the contacts associated with them for the gTLDs and ccTLDs. Also the protocol or set of rules that describes the application used to access the database. Each registrar implements the Whois protocol and maintains a separate distinct Whois database for its respective domain name registrations.

## **REGISTRY**

An Internet domain name registry is an entity that receives DNS information from domain name registrars, inserts that information into a centralised database and propagates that information in Internet zone files on the Internet so that domain names can be found by users around the world via applications such as the World Wide Web and e-mail. Different registries are run on a commercial or not-for-profit basis by registry operators.

## **REGISTRY REGISTRAR PROTOCOL (RRP)**

A protocol for the registration and management of second level domain names and associated name servers in both gTLDs and ccTLDs.

## **REGISTRY WHOIS**

The authoritative Whois service for second level domain names (2LDs) in a particular gTLD, ccTLD or 2LD within a ccTLD.

## **REQUEST FOR COMMENT (RFC)**

The RFC series, devised by US network engineer Steve Crocker and initially edited by IANA chief Jonathan Postel, is a mechanism for the exchange of information and development of standards regarding Internet architecture. Some RFCs have a narrowly technical focus; others, such as Vinton Cerf's 1998 obituary for Postel, have a broader interest. Publication of a document in the series does not signify that a proposal has been accepted by the IETF. It means, instead, progress towards the 'rough consensus and running code' emphasised by the founders of the Internet.

## **RESALE**

In some gTLDs, notably .com and some ccTLDs, it is possible to trade the right to use a domain name. The resale market has contributed to the growth of a vigorous domain name services industry (including domain name auction services and large-scale 'pre-registration' services). Resale has also, however, been criticised as encouraging cyber-squatting and inappropriate speculative registration. The Australian regime specifically prohibits resale of .au domain names.

## **RÉSEAUX IP EUROPÉENS (RIPE)**

A non-profit membership organisation responsible for administration and registration of IP addresses in Europe, the Middle East, Equatorial Africa and Central Asia. <http://www.ripe.net>

## **RESOLVE**

The process whereby domain names are matched with their corresponding IP numbers. Resolution is accomplished by a combination of hardware and software, referred to as name servers, that use the data in the DNS to determine which IP numbers correspond to a particular domain name.

## **SEBASTIÁN J RICCIARDI**

Appointed as a member of ICANN At-Large Advisory Committee (ALAC) in 2003, Mr Ricciardi is an Argentinian businessman with a background in information technology.

## **MICHAEL M ROBERTS**

Mr Roberts was Deputy Director of Information Technology Services at Stanford University, a founder and first Executive Director of the Internet Society, and Vice President of the US EDUCOM tertiary education IT and networking consortium. From October 1998 to March 2001 he was ICANN's President and Chief Executive Officer.

## **OSCAR ROBLES GARAY**

Chair of the Registration Facility for .mx, Mr Robles Garay was a member of the IATLD, of the World Wide Alliance of Top Level Domains (WWTLD) and a member of the 1998 ICANN Advisory Committee on Membership.

## **THOMAS ROESSLER**

Appointed as a member of the ICANN At-Large Advisory Committee (ALAC) in 2003, Roessler had earlier been involved in the 2000 At-Large elections and has been active in the icannatlarge.com initiative. He was Chair of the DNSO General Assembly from early 2002 and a GA delegate to the DNSO WHOIS Task Force. Mr Roessler's weblog has attracted attention for its coverage of ICANN developments. <http://www.does-not-exist-net>

## **ROOT**

The top of the DNS hierarchy often referred to as the 'dot'.

## **ROOT SERVER**

A machine that has the software and data needed to locate name servers that contain authoritative data for the top level domains such as .com and ccTLDs such as .au, .nz and .uk. The root servers are, in fact, name servers and contain authoritative data for the very top of the DNS hierarchy. Currently technical specifications limit the number of root servers to 13. The servers are located around the world.

## **HELMUT SCHINK**

An ICANN Director from 2000 (selected by PSO), Dr Schink is Director for Advanced Standards at electronics giant Siemens, ITU Rapporteur for the Global Information Infrastructure Project, chair of the ETSI project on IP telephony specifications and a member of the ISOC Advisory Council.

## **STRATTON SCLAVOS**

Chief Executive of VeriSign. <http://www.verisign.com>

## **SEARCH ENGINE**

An online service that enables users to search the World Wide Web for websites, individual documents or other resources. Although there are over 2,000 engines, most search traffic is believed to involve the top six engines, including Google, Altavista and Infoseek. Engines typically display a hyperlinked list of search results that match a query input by a user, implicitly providing an index of the web. That list is derived from a database generated by a web spider that had previously visited many sites on the web or another engine or directory. Most engines use proprietary algorithms in collecting information from the web and ranking information for display to users. Early engines tended to privilege sites or

individual web files that used domain names and file titles that matched the user's search query. That privileging was reflected in the domain name industry, with premium prices being paid for generic or other domain names (including misspelt names) that were likely to appear at the top of a search list and the emergence of businesses specialising in advising registrants (or registering for resale) for good names.

## **SECOND LEVEL DOMAIN NAME (2LD)**

In the DNS, the next level of the hierarchy underneath the top level domains. Second level domain names are often descriptive and have come to be used to represent businesses and other entities on the Internet. For example, in [www.auda.org.au](http://www.auda.org.au), the .org portion is the second level domain.

## **SECURE SOCKET LAYER**

A security protocol that facilitates communications privacy over the Internet by allowing client/server applications to communicate in a way designed to prevent eavesdropping, tampering or message forgery.

## **WENDY SELTZER**

Member of ICANN At-Large Advisory Committee (ALAC) from 2003, staff attorney with the Electronic Frontier Foundation and Fellow at the Berkman Center for Internet & Society. Ms Seltzer is associated with the Chilling Effects and Creative Commons projects.  
<http://cyber.law.harvard.edu/seltzer.html>

## **FRANCISCO A JESUS DA SILVA**

ICANN Director from 2003. <http://www.icann.org/biog/silva.htm>

## **JOE SIMS**

Served as ICANN's outside legal counsel until 2003. Partner at Jones, Day, Reavis & Pogue.  
<http://www1.jonesday.com/attorneys/bio.asp?AttorneyID=13072>

## **START OF AUTHORITY (SOA) RESOURCE RECORD**

A type of record used in the distributed DNS database to indicate that a particular name server contains authoritative data for a particular domain.

## **SUPPORTING ORGANIZATIONS**

ICANN's Supporting Organizations serve as advisory bodies to the ICANN Board, with primary responsibility for developing and recommending substantive policies regarding those matters that fall within their specific responsibilities. <http://www.icann.org/general/support-orgs.htm>

## **PETER DENGATE-THRUSH**

Very active in ccTLD Constituency, Director of ISOC NZ, NZ Barrister.  
<http://www.internetnz.net.nz/biographies/bio99pdthrush.html>

## **TLD ZONE**

A file that contains data describing a portion of the domain name space for a specific top level domain (TLD). Zone files contain the information needed to resolve domain names to Internet Protocol (IP) numbers. Zone files contain domain names, their associated name server names and the IP addresses for those name servers.

## **TOP LEVEL DOMAIN (TLD)**

In the DNS, the highest level of the hierarchy after the root. In a domain name, generally the portion of the domain name that appears furthest to the right, for example, .com, .net, .org, .biz, .info, .name, .pro, .coop, .museum, .aero.

## **LOUIS TOUTON**

ICANN Vice President, General Counsel and Secretary (from 1999). Formerly a partner with Jones, Day, Reavis & Pogue and legal counsel to Jonathan Postel and IANA. <http://www.icann.org/biog/touton.htm>

## **TRANSMISSION CONTROL PROTOCOL (TCP)**

A computer protocol that allows one device to send another device a continuous stream of information by breaking that data into packets and reassembling the data at the other end, resending any packets that get lost in the Internet. TCP uses Internet Protocol (IP) to send the packets; the two are referred to as TCP/IP.

## **EUGENIO TRIANA**

Dr Triana was an ICANN Director from 1998 to 2000. After an academic and business career he held senior positions within Spain's civil service and the European Commission, where he was Deputy Director General for Directorate XIII. He was President of the Licensing Executive Society's Spanish Chapter 1983-90.

## **PAUL TWOMEY**

Former Chief Executive of Australia's National Office for the Information Economy (NOIE) and chair of the ICANN Governmental Advisory Committee (GAC) 1999-2002. Dr Twomey was previously an Executive General Manager with Austrade, the Australian government's trade promotion agency, a consultant with McKinseys and principal (in association with Ira Magaziner) of venture catalyst firm, ArgoPacific. In contrast to most ICANN Directors, his degrees were in history and political science rather than network engineering or mathematics. His

appointment as chief executive of ICANN was announced in March 2003.  
<http://www.argopacific.com/paul.htm>

### **UNIFORM DISPUTE RESOLUTION POLICY (UDRP)**

A commercial alternative dispute resolution mechanism, developed by the World Intellectual Property Organization for ICANN to deal with disagreements about rights to the use of domain names in the .com, .net and .org gTLDs. The UDRP has since been adopted (and adapted) for a range of ccTLDs and new gTLDs, for example the Australian .auDRP rules. The mechanism aims to provide timely and low-cost arbitration, based on the contract between registrars and registrants. UDRP providers are independent of national trademark or other intellectual property law and specific cyber-squatting enactments such as ACPA, reflecting traditional commercial ADR regimes. Jurimetric studies by Mueller and other scholars suggest that the UDRP has accentuated the shift from IP addresses to IPR, privileging trademark and other intellectual property owners at the expense of the 'first come, first served' domain registration practice in the first years of the Internet.

### **UNIFORM RESOURCE LOCATOR (URL)**

An address used to locate web sites and pages or other resources on the Internet, for example, [www.qut.edu.au](http://www.qut.edu.au) is the address of the Queensland University of Technology. URLs are often considered to be synonymous with URIs, although strictly URLs denote that the address may change.

### **UNIVERSAL RESOURCE IDENTIFIER (URI)**

A string of characters, often starting with <http://> used to identify anything on the Web. URIs are meant to be unique and permanent.

### **UNIVERSITY OF SOUTHERN CALIFORNIA INFORMATION SCIENCES INSTITUTE (USC-ISI)**

Research and support body at the University of Southern California, host for Jonathan Postel and IANA.

### **UUNET**

Former European telecommunications group that provided financial support for ICANN during the start-up phase.

### **MOLLY SHAFFER VAN HOUWELING**

ICANN Senior Adviser 1998-99. <http://cyber.law.harvard.edu/svh.html>

### **JORGE VEGA**

Member of ICANN Advisory Committee on Independent Review.

## **WAIT-LISTING SERVICE**

Domain name pre-booking service from Verisign and SnapNames. Debate on the WLS and registry services sharply divided the Registrars' Constituency. Some of the debate can be found at <http://www.icann.org/bucharest/dns0-deletes-report-10jun02.htm>

## **WHITE PAPER**

June 1998 Department of Commerce document, *Statement of Policy for the Management of Internet Names & Addresses*, in response to comments regarding the Green Paper published in January 1998. The White Paper specified that preserving the stability of the Internet should be the first priority of any DNS management system. Among other things it called for the creation of a global not-for-profit non-government organisation that would eventually assume responsibility for coordinating four key functions for the Internet: the management of the Domain Name System, the allocation of IP address space, the assignment of protocol parameters and the management of the root server system. <http://www.icann.org/general/white-paper-05jun98.htm>

## **WHOIS**

A searchable database maintained by registries and registrars that contains information about domain name registrations in the gTLDs and ccTLDs. Also the protocol that describes the application used to access the database.

## **WHOIS SERVER**

The URL where the Whois service for a particular registry or registrar may be found.

## **LINDA WILSON**

ICANN Director from 1998, Chair of the ICANN Finance Committee from 2000, Chair of ICANN Board Nominating Committee 2003. Dr Wilson is former President of Radcliffe College, member of the Advisory Council of the US National Science Foundation, a Fellow of the American Association for the Advancement of Science, a member of the American Chemical Society, and a charter member of the US National Academy of Science's Government-University-Industry Roundtable. <http://www.icann.org/biog/wilson.htm>.

## **PINDAR WONG**

Dr Wong was an ICANN Director from 1999 to 2000, serving as Vice-Chairman of the Board (1999-2000). He was Vice-Chair of ICANN At-Large Study Committee. He is Chair of the Asia & Pacific Internet Association (having co-founded Hong Kong's first licensed ISP in 1993), and was an Alternate Chair of the Asia Pacific Network Information Centre (APNIC). <http://www.icann.org/biog/wong.htm>

## **WORLD INTELLECTUAL PROPERTY ORGANIZATION (WIPO)**

A Geneva-based agency of the United Nations concerned with copyright and intellectual property, in particular the administration and development of global agreements such as the Berne Convention, Paris Convention and Rome Convention that harmonise national intellectual property law and practice. WIPO's ethos reflects perceptions of intellectual property as both a commercial entity and something intimately associated with an author's personality. WIPO has been criticised for acting as an advocate for major corporate intellectual property owners at the expense of ordinary consumers. It was closely involved in the establishment of ICANN, particularly the development of the ICANN Uniform Dispute Resolution Policy, widely considered to favour trademark owners. WIPO's arbitration unit has secured the bulk of dispute hearings under the UDRP, analysed in jurimetric studies by Mueller and Geist.

## **WORLD WIDE WEB**

A subset of the Internet, characterised by the use of addresses such <http://www.icann.org>. Tim Berners-Lee's work on developing the www has made the Internet far more intuitive and usable for ordinary Internet consumers.

## **WORLD WIDE WEB CONSORTIUM (W3C)**

International not-for-profit organisation concerned with the development of standards for delivery and use of information on the Web.

## **HOULIN ZHAO**

Member of the ICANN Independent Review Committee 2001. Director of ITU Telecommunications Directorate. <http://www.itu.int/ITU-T/>

## **JONATHAN ZITTRAIN**

US legal scholar, member of 1998 ICANN Advisory Committee on Membership. He is a member of the Faculty of Harvard's Berkman Center. <http://cyber.law.harvard.edu/zittrain.html>

## **ZONE FILE ACCESS AGREEMENT**

An agreement with VeriSign Global Registry Services that must be executed by parties requesting access to the VeriSign Global Registry TLD zone files. <http://www.verisign-grs.com/TLD/>

## **ZONE FILES**

Files that contain data describing a portion of the domain name space for specific TLDs. Zone files contain the information needed to resolve domain names to Internet Protocol (IP) numbers. Zone files contain



domain names, their associated name server names and the IP addresses for those name servers.

## **STATEMENT OF ORIGINAL AUTHORSHIP**

The work contained in this thesis has not been previously submitted for a degree or diploma at any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signed: .....

E A WILLIAMS

Date: .....

## ACKNOWLEDGEMENTS

*Finality is death. Perfection is finality.  
Nothing is perfect. There are lumps in it.<sup>3</sup>*

This work is the result of long journey of discovery that began when I completed my Master of Arts thesis – the day my second daughter was due to arrive.

That journey has been taken together with a supportive family, academic colleagues and other professionals. Annabel and Zara have tolerated “Mummy’s works” for many years. Thank you my angels, it’s finished. David Vickers, my dear friend and father of the angels, realised I had a good idea and let me get on with it in the most supportive way.

Professor Bill Caelli, my principal supervisor, is a wonder. His enthusiasm for my work sometimes outweighed mine. He guided me, forced me to focus and, like all good supervisors, got the darn thing finished. Thanks, Bill.

There are other colleagues and friends too numerous to name. They know who they are because they’ve been with me in the years that I’ve been working in this area. For that support and forbearance, thank you. One person, however, requires special mention. Bruce Arnold provided me with thoughtful insights, useful references, and books to read and research assistance over many years. Deeply heartfelt thanks, Bruce.

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<sup>3</sup> Stephens, James, *The Crock of Gold* (1912), Book 1, Chapter 4

My faithful Weimaraners, Arki and Zebe, deserve much praise. They got me through this with long and necessary sanity walks in the forests around my home in Canberra.

I am responsible for all the lumps. If it were perfect, it would all have ended and this is just the beginning.

## **PUBLISHED PAPERS**

### ***Manuscripts Accepted for Publication***

Chapter Seven - Internet Governance in Australia: Modelling Self-Regulatory Structures in the Domain Name System, *Murdoch University Law School Electronic Journal of Law*, June 2003 edition, <http://www.murdoch.edu.au/elaw/>. Paper also presented at the International Telecommunications Union conference on *Member States' Experiences with ccTLD*, <http://www.itu.int/itudoc/itu-t/workshop/cctld/029r1.pdf>.

### ***Manuscripts Submitted and Under Review***

Chapter Three - Numbers to Names or IP vs IP® <http://www.firstmonday.org/>, July 2003.

Chapter Five - The Scramble for Regulatory Relevance: Domain Name System Governance and the New Role for Governments, *Governance: International Journal of Policy and Administration*, <http://www.blackwellpublishing.com/journal.asp?ref=0952-1895>, July 2003.

Chapter Six - Cosmocracy: Corporate Strategy and the Development of Internet Governance Models, *Berkeley Technology and Law Journal*, <http://www.law.berkeley.edu/journals/btlj/>.

Also submitted for presentation at the 31<sup>st</sup> Research Conference on Communication, Information, Technology and Law, George Mason University Law School, <http://www.tprc.org>, March 2003.

## **PRESENTATIONS**

Pacific Telecommunications Council, Mid Year Session, Hong Kong, June 2000. Presentation of early ideas on Chapter Five.

Pacific Telecommunications Council, Annual Meeting, Hawaii, January 2001. Presentation of early ideas on Chapter Six.

University of New South Wales Cyberspace Law and Policy Centre, *Domain Name Systems and Internet Governance Conference*, May 2002. Presentation of final ideas for Chapter Seven.

<http://www.bakercyberlawcentre.org/2002/DNS2002.htm>

Presentations at various ICANN meetings from November 1999 until October 2002 on ccTLD governance, mandatory codes of practice and operational by-laws.

## **PROFESSIONAL EXPERIENCE**

This research has been undertaken in an active and applied manner with direct professional and corporate governance roles in the field. The research has been guided and informed by real-time developments in policy, procedures, Board positions and corporate advisory work.

I was an elected member of the Board of Directors for the .au Domain Administration Ltd in 2001 and 2002. .auDA is responsible for the management of the .au country code registry, the conduct of registrars in Australia and the development of the domain name industry in Australia.<sup>4</sup>

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<sup>4</sup> .auDA's website is found at <http://www.auda.org.au>.

I also served as the Deputy Chair of the Board. Prior to joining the Board, I was an active member of the Competition Model Advisory Panel that provided detailed advice to the Board about the nature of competition in the Australian domain name market.

Whilst on the Board, I chaired the Registrar Code of Practice Committee that developed the mandatory Code of Practice for regulating registrar and re-seller conduct. I was an active member of the Membership Sub-Committee, responsible for determining a new membership structure, fees and charges for membership and member benefits.

At an international level, I have been active in the Internet Corporation for Assigned Names and Numbers Registrars' Constituency working on diverse issues such as the development of policies for the transfer and deletion of domain names and the development of policy on new registry services. In addition, I conducted a comprehensive review of the Registrars' Constituency By-Laws to enable the Constituency to work more effectively.

I have also been involved in the ccTLD constituency as a member of the .auDA Board. I am on the Christmas Island .cx Policy Advisory Board and assisted the DOT CX Corporation with their negotiations with the Commonwealth of Australia and ICANN on key re-delegation issues.

I have advised the Pacific Island Forum Secretariat on DNS governance issues and opportunities for Pacific nations to participate more actively in ICANN processes and activities.

## **SECTION A – THESIS MECHANICS**

The section sets out the mechanics of the dissertation and provides a guide to the structure of the research. It outlines the research methodology employed and the content of each chapter. The chapters are designed as discrete but connected portions of the work, examining the hypotheses from different perspectives. Several of the chapters have been submitted to academic journals and are under review. Much of the work has been the subject of conference proceedings and has benefited from commentary from both corporate and academic colleagues. This section also provides some historical and contextual materials to place the research in a limited timeframe and within the literature.

The bulk of the research has been undertaken independently and off campus. It has been completed in a completely practical way with intimate involvement in both the management and commercialisation of Internet resources in Australia and overseas.

Whilst the research has been undertaken in the Faculty of Information Technology's School of Software Engineering and Data Communication, it is not a technical treatise about Domain Name System<sup>5</sup> engineering. It does not consider the impact of, for example, the proposed transition from Internet Protocol version 4 (IPv4) to Internet Protocol version 6 (IPv6). It does

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<sup>5</sup> "The Domain Name System is an [Internet](#) service that translates [domain names](#) into IP addresses. Because domain names are alphabetic, they're easier to remember. The Internet however, is really based on [IP addresses](#). Every time you use a domain name, therefore, a DNS service must translate the name into the corresponding IP address. For example, the domain name *www.example.com* might translate to *198.105.232.4*. The DNS system is, in fact, its own [network](#). If one DNS server doesn't know how to translate a particular domain name, it asks another one, and so on, until the correct IP address is returned." <http://www.webopedia.com/TERM/D/DNS.html>



not consider the implications of including multilingual domain names nor does it consider in technical detail the deliberations of the Internet Engineering Task Force (IETF).

It does, however, bring the impact of technical discussions and the Internet Corporation for Assigned Names and Number's (ICANN) mandate to manage the DNS, into the realm of both political science and public policy development. The research takes account of a highly political, commercially sensitive environment in which the technical standards for operating the Internet exist. Without those standards and the governance associated with determining those standards, the Internet will not work effectively.

The research demonstrates a convergence of technical standards, corporate intent, government policy and the privatisation of regulation in a global electronic marketplace.

It is an examination of the impact of the development of a set of global technical standards that has moved from the private technocrat world<sup>6</sup> to the public corporate sphere.

Discussions about what is private and public; what is private sector and public sector; what is national government and international governance and what is public infrastructure and private commerce run through the work.

The battle continues for control of more robust and formalised regulation within ICANN. The recommendations of

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<sup>6</sup> I have called this the 'Postel Apostle' phenomena. Dr Jonathan Postel and his volunteers who took responsibility for various portions of the root were, and some still are, technical specialists who maintained the integrity of the DNS. The Internet Engineering Task Force (IETF) still closely approximates the way in which, in a collaborative way, Requests for Comment (RFCs) were developed and published. The shift away from technocrat volunteers, for example, in Australia, provides some of the most interesting material with which to analyse the impact of the globalisation of regulation, the corporatisation of regulatory structures and the effect of the dramatic commercialisation of the Internet, characterised here by the development of a commodity industry for the sale of domain names.

the Evolution and Reform Committee<sup>7</sup> are not fully implemented but will affect the future governance of ICANN. There are clear expectations from a wide range of participants, from both the corporate and government sector alike, that the rules of play in the new regulatory game of DNS governance will be strengthened. This is evidenced by moves towards reform that took place after the bulk of the research here was completed.

More predictable regulatory outcomes are required to engender continued confidence in a regulatory experiment that supports the shift to private sector regulation of the ubiquitous commercialised technical assets that enable the Internet to function.

## **Chapter Outline**

This section provides an overview of each of the following chapters.

Chapter One sets the context of the work and frames the way in which the work is undertaken. It provides a brief history of the Internet, as that history relates to the technical management of the Internet network and the strong culture of regulatory volunteerism that developed around the Request for Comment (RFC) system. Volunteerism is important as it continues into the newly constructed policy development mechanisms of ICANN. Who pays for ICANN is also important. Unlike other regulatory bodies, ICANN is not paid for by governments except where they make contributions to the running of the Governmental Advisory Committee (GAC). ICANN is funded, for the most part, by ICANN-accredited

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<sup>7</sup> ICANN President and CEO Dr Stuart Lynn's document and subsequent evolution and reform can be found at <http://www.icann.org/committees/evol-reform/fifth-supplemental-implementation-report-22apr03.htm>.

registrars and registries, both generic top level domain and country code registries. Whilst the Internet and the research that developed it was confined to research institutions and the military, the cost was absorbed by taxpayers in the United States and elsewhere. Now that the majority of costs are met by private sector corporations, the motivation for the donation of time and expertise has shifted, the actors have changed and expected outcomes have altered.

Chapter One also identifies key individuals and corporations involved in the formation of ICANN. This is important information because, over the life of the research, whilst ICANN's processes and procedures have been under development, personalities have been more important and influential than objective rules and regulations.

Finally, the chapter gives an overview of the market demographics of the industry in questions. The statistics provide a snapshot of key data about the extent of electronic commerce, market capitalisations of domain name registration companies and others in the industry such as hardware and software providers.

Chapter Two contains a comprehensive literature search across three key themes. These are the globalisation of regulation, regulatory frameworks and the DNS and the multifaceted public policy debate about the management of the Internet's technical resources. The findings have contributed to the literature in three key ways. They expand the discussion of the globalisation of regulation and provide some original conceptual thinking on the demographics of global influence patterns. This is being developed further in methodologies to track and define a comprehensive picture of the cosmocracy in fine detail.

I present data on critical participation patterns that has not been previously collated and analysed in any detailed way. I have expanded the literature on the role of governments and their relevance in global regulatory structures and on the place of national governments as entities with little influence on the global regulation of the DNS.

Chapter Two also contains an explanation of the research methodology employed here. The challenge of much of this work has been that the Internet is a constantly evolving phenomenon. To contain the research scope only data between November 1998 and November 2001 has been used. However, the literature which is considered here is more comprehensive and includes both historic and very recent 2003 materials.

The conceptual framework and hypothesis which has guided the work is also found in Chapter Two. The broader thrust of the research seeks to understand some conceptual thinking which frames the development of hybrid regulatory models for the DNS. These are:

- ownership versus stewardship
- control versus trusteeship
- commercial versus non-commercial use of global Internet resources
- international governance versus national government

Chapter Three is a discussion about a new philosophy of the value of names and naming. It describes the shift from the use of number strings to names that have manifestly different values. Control of the system which enables the resolution of domain names to Internet numbers and the policies enabling their effective use are critical to understanding the importance of the shift from IP numbers to the widespread use of domain names.

The chapter opens up some of the complex arguments surrounding domain name policy and its component parts of naming, ordering, ranking and labelling. Understanding why names are so important and why effective but forgettable numbers have been replaced by names provides insight into the underlying importance of the DNS, stressing the value of the name itself rather than the characteristics of the system.

Understanding the value of names to individuals, to groups, to businesses, to the organisation of society resides in history and philosophy. In this context, numbers to names is treated as a shifting emphasis from Internet Protocol and Intellectual Property rights or IP to IP®.

Chapter Four provides a general discussion of ICANN<sup>8</sup>. It explores the core of ICANN's mandate which is the management of technical functions which enable the Internet to operate reliably. ICANN is discussed in an historical context and the chapter does not take into account the impact of recent evolution and reform activities during 2002 and 2003.

Chapter Five defines and discusses governance by the private sector as opposed to governance by governments. It illustrates, through data about the GAC, the changing interplay

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<sup>8</sup> "The Internet Corporation for Assigned Names and Numbers (ICANN) is a technical coordination body for the Internet. Created in October 1998 by a broad coalition of the Internet's business, technical, academic, and user communities, ICANN is assuming responsibility for a set of technical functions previously performed under U.S. government contract by [IANA](#) and other groups. Specifically, ICANN coordinates the assignment of the following identifiers that must be globally unique for the Internet to function:

- Internet domain names
- IP address numbers
- protocol parameter and port numbers

In addition, ICANN coordinates the stable operation of the Internet's root server system. As a non-profit, private-sector corporation, ICANN is dedicated to preserving the operational stability of the Internet; to promoting competition; to achieving broad representation of global Internet communities; and to developing policy through private-sector, bottom-up, consensus-based means. ICANN welcomes the participation of any interested Internet user, business, or organization." Quoted directly from ICANN's website found at <http://www.icann.org>

between national governments, a hybrid private sector regulatory authority and the broader DNRI. Electronic commerce is the broader framework in which DNRI operates. The chapter reaches some conclusions about the role of national governments in the regulation of the global DNS and their relevance to ICANN. In ICANN's current form, national governments have been deliberately and strategically marginalised.

Chapter Six discusses the nature of corporate strategy and the influence of corporations on the development of Internet governance models. The chapter draws together, for the first time, a comprehensive statistical understanding of the types and kinds of corporations, both large and small, US-based and non-US, that have been involved in the early stages of ICANN's development. The statistics in the chapter provide an early data set on which to draw some conclusions about the kind of influence corporations have exerted on both policies and procedures for making decisions and the decisions themselves, particularly with respect to the expansion of the domain name space and the introduction of new gTLDs.

Chapter Seven is a detailed examination of Internet governance in Australia. It provides the first detailed discussion of DNS governance in Australia and contributes a comprehensive historical review and analysis of the transition to an industry self-regulatory model. It is a case study of how complex and multifaceted DNS governance has become in a national context whilst, at the same time, drawing direct parallels from the global experiences with ICANN. The .au domain name space provides a very useful illustration of the evolution of geographic top level DNS governance, at a critical point in the development of ICANN at an international level. The process through which the .au domain name space evolved is instructive when trying to

understand the impact of the hybridisation of regulation on a global scale especially with respect to the establishment of a set of global principles for DNS management which are used in national jurisdictions.

The evolution of the domain name registration market, in parallel with a regulatory experiment of open DNS governance, remains a work in progress. However, it is now possible to identify a set of factors that have enabled an orderly transition from a monopoly-provided service, limited by highly restrictive policy, to a more open industry where opportunity for competition can be identified at several points in the market.

Chapter Eight encapsulates a summary of the key findings of the research, a review of the key statistics and provides some commentary on future research directions.

The thesis also contains, at the beginning of the document, a comprehensive Glossary of key terms, stakeholders and abbreviations to facilitate an explanation of the research. The Appendices hold all the statistical data and charts; the Bibliography presents all the materials used in the thesis, both on-line and off-line and the Supplementary Material provides the full text of some critical resources which are only available, sometimes unreliably, on-line.

## CHAPTER ONE - INTRODUCTION

*We are now convinced that a more fundamental consideration of governance is urgently needed, aimed at producing a road map and a migration plan for the shift from industry to digital governance<sup>9</sup>*

*. . .the domain name war is a complex topic because of the way it combines technical knowledge of Internet protocols with economic, legal, and geopolitical factors<sup>10</sup>*

This thesis is about the development of a new global regulatory economy for the management of one of the key technical resources of the Internet, most commonly called the Domain Name System or DNS.

It examines the formation of the Internet Corporation for Assigned Names and Numbers (ICANN) as the global private sector industry self-regulatory body responsible for the management of the Internet. It identifies and discusses the role and power of key corporations and individuals. It analyses trends that have emerged in the formulation of alternate policy and regulatory models for the governance of the critical infrastructure on which Internet applications, such as electronic commerce, e-mail and information services, operate.

This is a fresh field of enquiry that encompasses an understanding of politics and policy formulation, global governance models and the impact of technology on decisions about effective international management of the globally accessible critical network infrastructure of which the Internet is part.

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<sup>9</sup> Ticoll (1999: 1)

<sup>10</sup> Mueller (2000a: 95)



The work extends the literature on globalisation and the role of national governments. It develops a new perspective on corporate strategy and influence on non-government regulatory agencies. It questions the efficacy of international governance models absent multi-lateral treaty arrangements and adequate enforcement mechanisms, such as licensing frameworks, performance standards compliance and consumer protection.

The application of the broader globalisation literature to the regulation of global business operations which depend on the robustness and reliability of the DNS, is a very specific slice of both the literature and its relevance to a market sector. Even though the DNRI is relatively small in terms of market capitalisation or investment volumes, the vast majority of corporations, small businesses, universities and research institutions, schools and a vast array of individual users rely on the Internet in a way not dissimilar to the telephone. There are many parallels between Internet governance and the way in which the international telephone numbering system has evolved. The most critical of these is that standards for technical governance have been developed in partnership between the "supply side" (or equipment manufacturers) and the "demand side" (or those who wish to make telephone calls).

The most important findings of the work are, firstly, that national governments have played a peripheral role in the operational management of Internet architecture<sup>11</sup>. They have failed to engage actively because, structurally and operationally, the formation of ICANN explicitly consigns national governments

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<sup>11</sup> Discussion about whether national governments ever had the right to manage the DNS remain moot. A more important question to ask is, given that the GAC exists and is functioning and that many national governments have authority over their geographic country code identifier, how effective government influence is and how it is manifest in any new regulatory structure such as ICANN.

to a limited advisory role. There was also a very specific push by successive US Governments for the private sector to take the lead in the regulatory management of the Internet itself, leaving content regulation, taxation and other domestic issues which remain the purview of domestic administrations.

Secondly, ICANN has struggled with achieving its mission and mandate because of significant questions surrounding its authority and ability to do what it has been tasked to do. It has struggled particularly with a controversial agenda, poorly resourced staff and an ever-changing job of work to do<sup>12</sup>. There has been little separation between the mechanisms for developing ICANN's policies and procedures and the use of those two elements in making decisions.

ICANN has been criticised in many quarters for its failure to address significant legitimacy and representation issues. Those criticisms have been addressed, in part, through the work of the Evolution and Reform Committee, the consideration of which is outside the scope of this thesis. It remains to be seen whether recommendations for change will strengthen the capabilities of the organization to manage its responsibilities more positively.

Thirdly, the research has found that corporate actors have been particularly persuasive in their influence on ICANN's agenda, on its funding arrangements and on the demands for, in return for costs being borne by the private sector, more flexible and effective regulatory responses. The idiosyncrasies of ICANN as compared to, for example, the International

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<sup>12</sup> From the meeting records, it is actually difficult to determine which agenda is the real one. Is it the Board agenda; the agenda of constituencies; personal agendas for representation on the Board; or the broader agenda of the global Internet community? For the purposes here, I have focused on the Board of Directors agenda but also taken account of other pressures from different quarters.

Telecommunications Union (ITU), are that ICANN is not a multi-lateral treaty organisation with binding powers to enforce directions. It is principally funded by the private sector, unlike the ITU which is a United Nations agency. It is populated by a greater proportion of private sector representatives than government appointees.

Finally, the research has found that the globalisation of regulation in the DNRI and the management of the DNS are highly volatile economically. It subject to rapid shifts in opinion, rapid developments in technology and applications and acute sensitivity to the economic conditions of the broader communications and information technology sector.

The expansion of the responsibility for the regulation of the DNS has created a new regulatory economy, outside the realm of national governments with new goods to trade and new advantages sought in that trade. This new economy is populated by an evolving class of individuals and corporations in the private sector who are disparately located but inextricably linked by technology and their ability to authorise the functional management of the DNS<sup>13</sup>. A new class of cosmocrats, who populate a global cosmocracy of policy and rulemaking, have replaced traditional bureaucrats in the new regulatory economy that manages Internet architecture and the commercial opportunities conferred by that architecture.

The rules of engagement for policy setting, technical management and commercial decision-making about the DNS have changed markedly in the last five years. The research set

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<sup>13</sup> The authorisation for the cosmocrats to fulfil a regulatory mandate comes from diverse sources. For example, for Board Directors it comes from a requirement to represent a particular region; for corporate representatives, it comes from being charged with maximising corporate advantage; for civil society advocates, mandate is derived from a broader social policy agenda in which ICANN is just one forum.

out here explains those critical changes, extends the application of existing theoretical literature on the globalisation of regulation; the role of governments and the manifestation of corporate strategy. It identifies key actors, both individuals and corporates, and illustrates patterns of engagement and participation. It provides some commentary on likely trends for the future.

The research links management structures with the implementation of mechanisms to protect critical infrastructure that enables a vast number of applications and uses around the world.

The work extends the literature on globalisation and the role of national governments. It also provides a detailed examination of the Australian experience of the transition of the governance of the DNS from government to the private sector.

The major challenge of the research has been to draw together very diverse threads of discussion across three areas. These are political science, technical standards and global governance. The research has evolved rapidly with the explosive growth of the DNRI through to April 2000. It has taken into account the marked economic downturn from April 2000 onwards and its impact on the realignment of the DNRI.

The research has been undertaken during the critical start-up phase of ICANN. This has meant that very little scholarly research has been available to directly inform the work<sup>14</sup>. The field of inquiry remains highly fluid, subject to the vagaries of economic conditions in the global information industry and to ongoing attempts at regulatory reform.

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<sup>14</sup> Since 2002, the work of Lessig, Mueller, Paré and Lim has expanded more general discussions around Internet governance, in all its various forms, which includes copyright and intellectual property, privacy and data protection. I have focused particularly on governance of the DNS.

Internet governance has a special and tightly constrained meaning here. It does not mean government of the Internet. The research is about a critical and fundamental slice of the Internet DNS that resolves Internet Protocol (IP) numbers to domain name addresses. The rapid commercialisation of the Internet network and the push to private sector management of public sector resources has challenged the way in which governments think about their role as governors; the way in which corporations fund the governance of critical infrastructure on which their businesses rely and the role for a global self-regulatory body driven by a consensus model of policy development.

The work is not about what the Internet does such as deliver e-mail, provide access to on-line information resources or commercial transactions. The work does not discuss content regulation, on-line gambling, civil society issues such as privacy protection or free speech. It does not tackle issues that are the responsibility of national governments such as taxation, the definition of culturally appropriate materials or surveillance.

In summary, the work focuses solely on the politics and policies of the management of a database of numbers and names. The discussion is highly complex because it has global commercial policy with widely divergent cultural, legal and regulatory impacts.

From a technical perspective the DNS works transparently with the average end-user unaware of what happens at the network layer that connects computers to each other in a similar way to the telephone system. In general, end-users are not concerned with how a technology works, but focus on the functionality of a system.

The architecture of the network is where the mission and mandate of ICANN starts. The network is the point from which

the research examines the development of new regulatory structures that are applicable around the world, insofar as the network itself is accessible to everyone.

The technology of the Internet is borderless and is concerned little with the policies of particular national governments. Some governments have shown an interest in the formation and implementation of the broad scope of Internet policies including the management of the DNS<sup>15</sup>. The global regulatory model and its hybrid manifestation includes participants from ICANN's five geographic regions<sup>16</sup> through both physical and remote participation.

The globalisation of regulation is not a new phenomenon. The shipping and aviation industries have global rules and regulations; the international standards organisation's work is applied around the world; the diamond and gold industries have standards which are recognisable wherever those commodities are sold.

The funding methodologies for industry self-regulation found in the telecommunications, aviation and broadcasting industries are well established. Those methodologies have provided a model for that which has been adopted in ICANN, particularly with respect to the levying of fees for registrar accreditation and for registry operation. In the telecommunications industry, fees are levied as part of license application processes or assessed as a proportion of revenue. Licenses are used as a means of ensuring compliance with standards and protocols to deliver network interoperability.

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<sup>15</sup> These governments are highlighted Appendix Three which sets out GAC participation rates.

<sup>16</sup> A discussion of the regions (and the problematic nature of arbitrary groupings of countries) is found at <http://www.icann.org/yokohama/geo-topic.htm>.

They are also used to provide a framework for operator behaviour across a wide range of areas including consumer service, inter-operator relations and service standards. In an industry self-regulatory environment, the engagement of industry representatives, consumer groups and government agencies is now considered, in many developed economies, the norm. For example, in the Australian case, industry self-regulation encompasses the development of enforceable codes of conduct, technical standards, interconnection terms and conditions and number portability all of which are overseen by the Australian Communications Authority (ACA)<sup>17</sup>. The ACA also has responsibility for regulating the Internet inasmuch as that regulation refers to law enforcement and national security<sup>18</sup>.

The system of license fees as a condition of market entry are, in the context of the research here, applied to ICANN accredited registrars and registries. The critical difference is that the enforcement mechanism relies not on the domestic jurisdiction of the parties but on Californian statute<sup>19</sup>.

The other critical difference is that the regulation of the DNS is relatively new. For example, the RFC series is about thirty years old but, for comparison, the ITU has been in operation since 1865, starting its life as the International Telegraph Union. The domain name registration industry is even

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<sup>17</sup> The ACA takes a light touch approach to regulation – full details are found on their website at <http://www.aca.gov.au>. The general competition regulator, the Australian Competition and Consumer Commission (ACCC), manages the *Trade Practices Act* which is applicable across the economy, most notably in the telecommunications industry.

<sup>18</sup> See the ACA's industry fact sheet on the issue.  
[http://www.aca.gov.au/consumer\\_info/fact\\_sheets/industry\\_fact\\_sheets/fsi13.pdf](http://www.aca.gov.au/consumer_info/fact_sheets/industry_fact_sheets/fsi13.pdf)

<sup>19</sup> I would argue that too much has been made of the location of ICANN's location in California and the reliance upon US law and statute. Any organisation needs a start point and perhaps ICANN will evolve to different legal tradition. At present, that seems unlikely.

newer, only really taking hold from the late 1990s onward when the Internet became more readily accessible to the general public.

The rapidly evolving private sector driven governance model for the management of Internet resources has become a new manifestation of policy and procedures that flow from an historical approach to the development of protocols via the RFC system, about which there is detailed discussion later in the work<sup>20</sup>. The model is designed to enable the Internet to function seamlessly. Technically, it also depends on telecommunications infrastructure, bandwidth availability and pricing structures that make Internet access affordable. It has given momentum to the development of the domain name services industry that has, in large part, met the cost of that regulation<sup>21</sup>. During the course of this research, the domain name registration industry has matured rapidly. Most notably, new gTLDs have been added which include open domains such as .biz, .info, .pro and .name and closed domains such as .aero, .museum, and .coop.<sup>22</sup>

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<sup>20</sup> There is very specific reference, on the ICANN website, to the desire to achieve broad representation of global Internet communities; and to developing policy through private-sector, bottom-up, consensus-based means. This is a very different set of motivations than those found in domestic policy and regulatory models within national jurisdictions. The key differences are "broad representation, private sector, bottom-up, consensus-based" all of which have enormous significance in the discussion of the globalisation of regulation and the input of governments into ICANN's operations.

<sup>21</sup> Discussion of the importance of corporations and other private sector actors is found in Chapter 6.

<sup>22</sup> Open domains are those which have very few restrictions on who can register names in the domain. Closed domains have specific requirements, for example, being an officially recognised museum in .museum. The press release announcing the expansion of the gTLD name space is found at <http://www.icann.org/announcements/icann-pr16nov00.htm> As at January 2003, .pro was not active.



## **Internet, regulated**

The work here dispels the myth that the Internet is free of regulation. The research has found that regulation may not be driven by governments but technical standards and protocols are, nonetheless, regulatory in effect. There may not be contracts and multi-lateral treaties, but there is regulation of behaviour by other means.

The regulation of Internet numbers (and later names) was held in private, and principally volunteer, hands for many years. From the late 1960s to the early 1990s, the technically driven Internet standards community was limited to a small number of research and military organisations but while formerly a “tool reserved for scientific and academic exchange, the Internet has emerged as an appliance of every day life, accessible from almost every point on the planet”<sup>23</sup>. The Internet community has undergone profound change as the Internet has moved into the public domain where highly commercial applications for Internet technology have had a direct impact on the way in which Internet architecture is managed. The potential for commercialisation of the DNS, and hence the applications to run on it, brought unheard of attention to a network system.

In this thesis, the term “domain name registration industry”<sup>24</sup> or DNRI refers to the Internet domain name structures, governing bodies and other stakeholders who formulate the rules for the supply and registration of names. At the retail, consumer level, the DNRI is a highly developed subset of the broader e-market place. The DNRI is global in its

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<sup>23</sup> Framework for Global Electronic Commerce, 1 July 1997. Found in Supplementary Material A and online at <http://dcc.syr.edu/ford/course/e-commerce-framework.pdf>.

<sup>24</sup> A detailed discussion of the constituents of the DNRI is found in Chapter Six.

reach because service providers and customers can be far removed, geographically, from each other. It is global in its involvement of national governments who manage country codes (ccTLDs) for their domestic constituencies; and global in its regulatory reach through the role of ICANN. To use Drucker's words, "in the mental geography of e-commerce, distance has been eliminated. There is only one economy and only one market." (Drucker 1999a: 50)

This research has focused on the global market for domain names as anyone, anywhere can buy a domain name assuming they have access to the Internet, can find a domain name registrar website and have access to a valid credit card<sup>25</sup>.

The research extends a comprehensive body of work on global business regulation found in writings on the law of the sea, international telecommunications and aviation. Whilst there is nothing new about global corporations such as British American Tobacco, the East India Company, IBM, De Beers, influencing their regulatory environments by relationships to governments in the countries in which they operate (by licensing conditions, by taxation, by limitations on private investment, by environmental controls), this work highlights strategies in a new industry.

What is new is the way in which regulation has shifted from multi-lateral treaty based regulation such as that which happens within the ITU and the World Trade Organization (WTO) to private sector regulation. Private sector regulation is that which substitutes the functions of traditional government bureaucracies as evidenced by the structure of ICANN, a private

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<sup>25</sup> There are many other issues bound up here – I deal only with the presumption that if one were to get access to the Internet, it is possible if one understands enough English to register a domain name. There are, of course, registrars who provide services in many different languages.

sector not-for-profit organisation based in the USA and run under statutes of the State of California. There are two new features. The first is that global resource management has moved from the public sector and that contracts are now used, rather than treaties, to effect that management. This trend is also reflected in national arrangements for DNS governance within countries such as Australia and the .au Domain Administration (.auDA) and in Canada with the Canadian Internet Registration Authority (CIRA).

The rise of industry self-regulation as a regulatory trend is critical to this work and places the work in a broader policy context. The drive towards, for example, national infrastructure policies has come principally from the United States, followed, in no particular order and in differing guises, by, for example, Singapore, Australia, Canada and Malaysia. Kahin identifies “the paradoxical role of the federal government as both a disinterested referee and an interested investor” (Kahin 1996: 150).

The policy commitment for the formation of ICANN is discussed in Chapter Five, but briefly, the US Government’s National Information Infrastructure (NII) policy was a precursor to a broader agenda for a Global Information Infrastructure (GII) which gained wide currency throughout the 1990s. US-based communications services firms were advantaged by the fact that the US was far ahead of other countries in liberalising its telecommunications markets. This meant that the cost base was lower and has continued to drop to the point where supply of bandwidth far exceeds demand.

Kahin argues that “the US NII initiative...expressed and illustrated the limited and increasingly self-effacing role of the public sector in the world’s largest economy” (Kahin 1996: 155). For the work here, it is an important statement. It gives a start

point for the, now predictable, sequence of a government removing itself from both the development of the Internet network (as a research and academic network) to one which, in its current form, is highly commercial.

“...the Internet was recognized as a model because the processes for developing Internet standards had been so successful in advancing widespread use of the TCP/IP protocol suite...” and this success in self-regulation perhaps provided some confidence in a self-regulatory model. (Kahin 1995: 173) It is important to note though that that success of early self-regulatory approaches by members of the IETF and others who created the RFCs depended on a very small group of committed technical operators. They were expert in communications protocols and, between 1970 and 1990, they operated in a technical environment, focused on making things work rather than juggling competing commercial imperatives.

Kahin’s finding that the “. . . success of the Internet processes convinced the federal research agencies that standards development...had to be anticipatory, iterative, and linked to the development of real products and services” has been borne out in the ICANN processes and procedures. From work done in 1995, prior to the full formation of ICANN “...it has become clear [to Kahin] that Internet standards will be driven increasingly by market forces...” (Kahin 1995: 173). However, as late as 1999, the Department of Commerce sought assurances from the private sector that it had the resources and commitment to manage the DNS and, by extension, the office of ICANN.

It is interesting, in the context of the first part of the hypothesis which is set out in full in Chapter Two, that Kahin argues that “...the NII initiative has been aimed at stimulating private-sector activity and at reducing government activity in

favor of private enterprise". (Kahin 1995: 181) This contention is examined in Chapter Six on corporate involvement in setting the regulatory agenda.

Kahin, in his explanation of the impact of the NII project, goes part way in illustrating why the civil society lobbyists, whose views I have left aside in the dissertation, succeeded in capturing much of the public microphone time at ICANN meetings in the Open Forum space on the agenda. Kahin argues that "...The NII initiative as a whole has succeeded in focusing public attention on the transformative potential of information technology and networks and the need to develop a deeper understanding of their social, economic and policy implications" (Kahin 1995: 183). I leave aside completely discussions of social policy impacts as, in general, responsibility for, rather than empathy with, those policies lies with national governments.

However, as Kahin argues, "...the underlying policy issues remain and indeed have grown in complexity and nuance, but they are overshadowed by the plethora of business opportunities playing out in the Internet". (Kahin 1995: 184) The research here indicates that Kahin is correct even if there has been a marked economic downturn through April 2000. I have used two key markers to understand the nature of market opportunity presented by the commercialisation of the Internet. The first is found in the diversity of corporate and individual actors who have attended meetings. The data to support that is found in Chapter Six. The second is an issues-based discussion on the processes, procedures and decisions about the allocation of new gTLD names, the issuing of which expands the opportunity for the DNRI to sell more names.

Baer argues that the GII discussion, led by the United States, was important for the framing of and policy development

for ICANN. The GII acted as a key external catalyst. The release of the Clinton Administration's 1997 *Framework for Global Electronic Commerce* formed part of the chain of policy discussions that led to the creation of ICANN and, as a result, a significant shift in regulatory policy. The Framework is discussed in detail in Chapter Five.

Baer's 1997 argument that "...the technologies, markets and investment patterns propelling the GII are changing much faster than are the rules and institutions that traditionally have governed these activities. How these rules and institutional arrangements will evolve will strongly influence the pace of investment, trade innovation, infrastructure development within and among nations" has been borne out by the research here. (Baer 1997: 532)

Baer's framing of his argument along the following lines – "...(1) continued reliance on national regulatory regimes; (2) acceptance of negotiated arrangements principally among private sector stakeholders; and (3) strengthened GII roles for regional and international institutions" (p 532) supports all three components of the hypothesis.

Baer's identification of key stakeholders which include "...a wide range of private sector suppliers of communications and information products and services, government-owned communications carriers, content providers and others..., and a wide variety of national and international governmental agencies..." indicates how complex the picture is. However, the data gathered here across the chapters, highlights that it is possible to rank, order, categorise and understand the key actors (both individual and corporate) and some of their motivations. It is too early to determine, by any objective measures, their success over the long term.

Baer is correct in finding that “. . .consensus becomes even more difficult to achieve when actors and issues are transnational”. I would argue that, when conflicting or competing commercial opportunities are included, there is too much pressure placed on developing bottom-up consensus-driven decisions that adequately reflect tolerable, practical and workable outcomes.

Finally, Kahin argues that “...the nature of the technology makes them (services) globally accessible and implementable. The Web is conspicuously ‘world wide’, and its transformation of and by advertising, marketing customer relations is not limited by national borders” (Kahin 1995: 151). This view is examined in Chapter Three’s exploration of the importance of domain names, rather than their corresponding numbers.

### **Summary: Context and Content**

In summary, the policy context for the research here is one in which many governments have removed themselves from direct regulation of industry to a rather more distant ‘set policy’ and ‘industry regulate’ philosophy. For conduct within a country’s natural jurisdiction, this is relatively simple to implement and oversee. The challenge arises now, and here the impact of technology is at its greatest, where regulated business activity takes place out of jurisdiction. However, this work is not about the conduct at a computer terminal; it is about having all devices<sup>26</sup> connected to a network communicating with each other reliably, efficiently and robustly wherever those devices may be located.

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<sup>26</sup> I use the term “device” because it more accurately characterises the possibility that equipment such as mobile telephones, kiosks in airports, laptops on wireless networks could all be connected to the Internet with an IP number.

The core of the work is, firstly, an analysis of the globalisation of regulation, secondly, an analysis of the changing relationships of government and the private sector, and thirdly, the impact of the governance of the DNS in creating a new regulatory economy with new actors, new influences and new systems.

## **Key Findings**

The research has found that national governments have played a peripheral role in the operational management of standards and protocols that enable Internet architecture to work effectively.

Secondly, ICANN has struggled with achieving its mission and mandate because of significant questions surrounding its authority and ability to do what it has been tasked to do. It has struggled particularly with a controversial agenda, poorly resourced staff and an ever-changing job of work to do. It has been roundly and loudly criticised in many quarters for its failure to address significant legitimacy issues. It remains to be seen whether recommendations for change will strengthen the capabilities of the organisation to manage its responsibilities more effectively.

Thirdly, the research has found that corporate actors have been particularly persuasive in their influence on ICANN's agenda; on its funding arrangements and on the demands for, in return for industry self-regulation costs being borne by the private sector, more flexible and effective regulatory responses.

Finally, the research has found that the globalisation of regulation in this particular part of business operations is still developing its service offerings, at the same time as a consolidation of operators takes place.



I turn now to detailed explanation of the literature, concepts and methodologies which have guided the work.

## CHAPTER TWO - LITERATURE SEARCH & CONCEPTUAL FRAMEWORK

*Laudant illa sed ista legunt*<sup>27</sup>

### Introduction

This chapter provides a comprehensive overview of the materials that have been used to inform the work. The literature ranges across three key subject areas. These are globalisation and business regulation; the Internet and the DNS; the role of governments and corporate strategy. Conceptually, the work is bounded by four key concepts sets. The hypothesis is in three parts and is discussed below. Finally, the scope of the work is defined and key definitions are provided.

### Literature

The literature review has been a complex task because of the unevenness and partiality of much of the writing. On the one hand there is significant work on, for example, globalisation and regulatory reform, on electronic commerce in general and on dispute resolution in the intellectual property wars over ownership of domain names. On the other, there is little material on the hybridisation of regulatory structures and the shift from public sector to private sector regulation, little about policy development in the DNS at a network infrastructure level and even less about the resolution of disputes over DNS governance rather than specific domain names as

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<sup>27</sup> Martial, *Epigrammata*, book 12, no 46 (47). Found in Oxford Dictionary of Quotations, 449: 13.

manifestations of intellectual property. In addition, the recent history of ICANN is just that. It is recent and dominated by popular press articles rather than a body of dispassionate academic contributions. The Internet, using the most general definition, has engendered a plethora of populist writings, on-line web logs<sup>28</sup> and outlandish predictions about how the Internet has or will change the world. There have been, over the life of the research, a changing set of variables including, for example, a significant economic downturn and a shift in personalities, evidenced in part by the comprehensive dramatis personae in the glossary.

With those variables in mind, the literature review is set out as follows:

- global governance and, more broadly, globalisation of institutions;
- the valuation of names and naming rights;
- within the context of the demographics of the DNS and broader industry, an examination of the dot com boom and subsequent market correction;
- an analysis of legal materials to put in context regulatory (as opposed to legal and legislative) structures.

An analysis of intellectual property disputes is included to frame and acknowledge what this work excludes, that is, disputes over the intellectual property of domain names, and to clearly identify the management of the underlying network resources as the core of the technical part of the work.

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<sup>28</sup> Blogging is an on-line form of commentary or personal journal that is particularly popular among the 'digerati'. Some blogs offer detailed and cogent analysis of governance issues. Others, particularly community blogs with multiple authors, have the characteristics of unmediated on-line news groups, with a flavour of shout loudly, shout early and shout often. Blogging as a phenomenon and concerns about the closed nature of many blog communities are discussed at <http://www.caslon.com.au/weblogprofile.htm>. See examples of ICANN-related blogs at <http://www.icannwatch.org> and <http://www.lextext.com/icann/>

An examination of both scholarly and popular works on ICANN, its mandate, its successes and detractors completes the framing of the work.

## **Global Governance & the Globalisation of Institutions**

The discussion of global governance sits within the broader literature of globalisation which includes work by Sassen (1996), Braithwaite & Drahos (2000), Arup (2000) and Held & McGrew (2002). Globalisation as a concept also sits within the social policy literature and, in the context of developing legal structures, within legal discourse.

Of most use to this work is the positioning of Arup's work in a politico-legal context that recognises the maturation of cross-border regulatory structures, through open technology and public policy. In addition, Arup argues that the application of global regulatory responses challenges the capacity of national governments to successfully regulate domestically.

Braithwaite and Drahos' contribution, in size and significance, to the debate on global business regulation puts into perspective the nature of global businesses in the network economy. This includes what kinds of businesses they are; what they trade; how they trade and how they manage the environments in which they operate. The results here extend Braithwaite and Drahos' work by applying it to the DNS and the new DNRI which is global in scale, scope and customer base. This globalisation is especially the case with ICANN-accredited registrars<sup>29</sup> that are located all over the world and, if they only sell generic top level domain names (gTLDs) such as .com, .net and .org, are likely to have customers anywhere who are

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<sup>29</sup> A full list of accredited registrars is found at [www.icann.org/](http://www.icann.org/)

connected by a phone line, computer terminal and have access to a credit card. The novel part of arrangement is that businesses have customers all over the world. The businesses may be physically remote from their major market with operations in one area with access to cheap bandwidth and telephone costs, locate the corporate offices in a tax-friendly location like the Cayman Islands and have a small head office for the executive team in New York City. This configuration is similar to other global industries such as banking and finance and is consistent with the findings of both Porter and Sassen. Arup and Braithwaite & Drahos argue that there is a contest between national sovereignty and the harmonisation of regulatory principles. This is starkly illustrated here when examining the regulation of geographic or ccTLDs which remain in the purview of national governments (but, to confuse matters, the operation of which may be hived off to private sector regulatory authorities or commercial entities) and gTLDs which are most certainly within the purview of the global regulatory body, ICANN.

I have used, to frame the discussion, Braithwaite and Drahos' (2000: 8) distinct kinds of globalisation, that of firms, that of markets and that of regulation as they all are relevant here. Whilst their work does not specifically refer to the Internet nor its governance, it is a relatively straightforward task to extrapolate their work on firms (seen here as corporate strategy in contributing very markedly to the progress of ICANN's work) and markets (seen here as the development of new markets in electronic commerce and particularly in the development of highly competitive registrar and registry business models).

Braithwaite and Drahos' work takes place in the context of a series of industry groups – most notably telecommunications

as the treatment of international telecommunications regulation has many similar facets to that of Internet governance<sup>30</sup>. In addition, their work focuses on two key elements which support the work here. The first is that of “recognizing and harmonizing the decline of national sovereignty” which is discussed here in the context of country code administrators and the operation of the Governmental Advisory Committee. The second is recognition of the globalisation of regulation through the creation of global networking businesses such as Network Solutions and Register.com. The globalisation of firms is tackled, in practical terms in Chapter Six on corporate heavyweights and their influence on a global regulatory agenda.

Braithwaite & Drahos also tackle, unlike other scholars in the field, the presentation of “globalization as a contest of principles – a contest, for example, between the principle of harmonization and the principle of national sovereignty” (Braithwaite & Drahos 2000: 7). This idea is mapped here to the clear tensions between, on the one hand, the desire of national governments to maintain control of their portion of the Internet and, on the other, the clear shift to governance models that have no location except in cyberspace.

Finally, Braithwaite and Drahos’ work on standards setting and the normalisation of technical standards into more general operating rules is important. In this case, the Request for Comment series is examined and maps closely to their findings.<sup>31</sup>

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<sup>30</sup> In addition, the role of the International Telecommunications Union (ITU) has been instrumental, both positively and negatively, on the formation of ICANN and its policies and procedures.

<sup>31</sup> See, for example, discussion on air safety standards by IATA, the World Association of Nuclear Operators (WANO) and the New York Stock Exchange’s influence on securities trading (2000: 492).

The data collected for this work, particularly on participation rates and attendance costs align with Braithwaite and Drahos' work on identifying power bases and the shifting nature of regulation. Indeed, the identification of transition phases and volatility in power bases is reflected in the ICANN experience where the development of a variety of constituencies has provided the avenue for participation by a wide range of both corporate and individual actors.

The globalisation of regulation is a thread running through the whole of the work but handled specifically in Chapter Four on the development of ICANN. Sassen's work on governance and accountability takes a different direction to that of Braithwaite and Drahos. It is instructive when considered in relation to the calls for ICANN to be accountable and to practice good governance. Accountable to whom and govern what and how? Sassen argues that the "growth of a global economy in conjunction with the new telecommunications and computer networks that span the world has profoundly reconfigured institutions fundamental to processes of governance and accountability in the modern state. State sovereignty, nation-based citizenship, the institutional apparatus in charge of regulating the economy. . .all of these institutions are being destabilized and even transformed as a result of globalization and the new technologies" (Sassen 1996: xii). We see that this is indeed the case with respect to the governance of the DNS and its associated service industries, such as the DNRI.

It is interesting to align Sassen's arguments about citizenship with the broader view here that cosmocrats<sup>32</sup> have,

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<sup>32</sup> Cosmocrats is a term used to describe those stateless beings (because they don't care where they live) who are connected by technology, have access to e-mail and could as easily sleep and work in Bermuda as Brisbane. They all, nonetheless, contribute to the development of rules of the Internet roost. This phenomenon is seen in high relief by,

to a large extent, established the rules of global DNS. The rules that are used in the management of the DNS are cumulative and reflect a variety of rule-making traditions, those of engineers and code writers; those of bureaucrats developing policy and those of lawyers who seek to protect the interest of their clients. I have characterised this trend as IP versus IP®, or Internet Protocol versus Intellectual Property Rights.

## **The Value of Names and Network Assets**

To understand the effect of the decline of numbers and the rise of names, it is helpful to review the literature on the value of network assets. Those values and the utility and desirability of domain names demonstrate the rise of IP® and the decline of IP numbers. Although this is fully explored in Chapter Three, the literature on the value of names comes from two areas. The first is a sociological and information science examination of why names are important to us. This includes the ability to describe, rank, order and associate information. In many cases, the value of a domain name is intangible. For example, it may sound good, look funny or new or interesting or point to an off-line, physical location of a good or service. This work focuses on the value of domain names as that which is derived from the capability of the DNS database to match a network of numbers to a corresponding and unique domain name. The names that match numbers are a simple, technical answer to making it easier to remember where electronic resources are located when the network reaches a certain critical mass.

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for example, the contributions to ICANN discussions which are routinely posted on ICANN's website and, for more granularity, on the Registrars' Constituency website at [www.dnso.org/registrars](http://www.dnso.org/registrars). Chapter Six provides data and analysis of cosmocracy and cosmocrats. In summary, I talk about a community of expertise and interest which is not bound by nationality or location.



The complication is that there must be a unique number to match with a unique name. This creates difficulties when a name has other intellectual property and branding characteristics bound up in it.

The second part of the literature deals more specifically with the value of names in the context of the DNS and the DNRI. I focus here only on the latter which is the use of domain names as a simplifier for IP number strings.

The academic literature on the commercial value of domain names is limited. The value of a domain name to famous trade name or mark holders (IP®) is well described in the intellectual property literature. In addition, there have been numerous cases where substantial sums of money have changed hands to buy desirable names or to recover them from speculators. Perceptions about the value of names as a marketing asset are reflected in the emergence of a domain name dispute resolution sector populated by professional arbitrators, lawyers and marketers. This is found in the growth of World Intellectual Property Organisation (WIPO) arbitrations about the rights to use a domain name. ICANN has outsourced uniform dispute resolution processes (UDRP) to WIPO through a variety of independent arbitrators.

The prices paid for names, either in a gTLD or ccTLD context is, however, only part of the equation and, for the purposes here, the least important.

Measures to determine the value of a domain name also demonstrate the importance of the underlying DNS architecture. There is considerable variation in domain name valuation methodologies. There are, however, four key components. There are name length, the attributes of the characters in the name, for example, inclusion of 'power' characters such as 'z' or prefixes such as 'e-' or 'I-', whether the name is in the .com

domain or whether it is easy to remember. The latter is the most subjective characteristic. Taken together, these characteristics are subjective; depend on some measure of luck in speculating on the most attractive and the existence of the right economic conditions to achieve a good price. The writing in this area is at best unsophisticated and ill conceived. In addition, the valuation methodologies are opaque and not readily tested<sup>33</sup>. I would expect that, in future, new marketing and branding philosophies will take into account the valuation of domain names in a more robust, statistical way which is not so susceptible to the vagaries of dot com boom and bust.

## **Demographics and Statistics**

There are three key sources of statistics that frame the research. The first is the zone<sup>34</sup> files which are the authoritative list of all domain names and numbers. The second is general data from the OECD, the Australian Bureau of Statistics and other industry sources such as investment house analysis. The final source is the meeting records from ICANN.

Some early zone file information, in its original form, is instructive. The 1992 table is useful as a start point for later growth analysis.<sup>35</sup>

Distribution of Hosts by Top-level Domain
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<sup>33</sup> Most of the literature is on-line and may have disappeared since the dot com crash. For example, Lee Hodgson's site at <http://www.sitepoint.com/article/266>.

<sup>34</sup> A zone file is "A file on a nameserver that designates a domain name with all of its associated subdomains, IP addresses, and mail server. Parts of the zone file include the A record, CNAME, and MX records. A zone file is also called a 'DNS table'. Found at <http://www.free-webhosts.com/definition/zone-file.php>

<sup>35</sup> Found at <http://www.isc.org/ds/rfc1296.txt>. Emphasis added.

This table is not available online.  
Please consult the hardcopy thesis  
available from the QUT Library

An Internet Domain Survey of July 2001 shows the numbers of hosts advertised in the DNS.<sup>36</sup> These figures map to the period of the research undertaken and indicate that the number of hosts has increased dramatically since the early 1990s.

This table is not available online.  
Please consult the hardcopy thesis  
available from the QUT Library

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<sup>36</sup> Found at Internet Software Consortium <http://www.isc.org>.

At the same time, the numbers of domain names increased dramatically<sup>37</sup>. The State of the Domain (SOTD)<sup>38</sup> holds relatively reliable figures for the numbers of domain names and which registrars manage them on behalf of end-users. However, the data only takes account of events after March 2001.

The DNRI is in two parts. This discussion focuses only on ICANN accredited registries and registrars who provide domain name registrations and are listed on the ICANN website<sup>39</sup>. There are other ancillary industries which have emerged. These include domain name valuation services, industry data suppliers and auction services. The DNRI has evolved from the commercialisation of Internet network resources and the creation of business opportunities on the network. Registry services are provided by companies such as Verisign-Network Solutions<sup>40</sup> which manages .com, .net and .org. Registry services, as defined under the contract, are the "operation of the registry for the Registry TLDs and shall include receipt of data concerning registrations and nameservers from registrars, provision of status information to registrars, operation of the

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<sup>37</sup> The most useful source of data on the numbers of domain names and registrar market share shown across registries is found at <http://www.sotd.info>.

<sup>38</sup> Found at <http://www.sotd.info>.

<sup>39</sup> Found at <http://www.icann.org>

<sup>40</sup> The Network Solutions & ICANN agreement is found at <http://www.icann.org/nsi/nsi-registry-agreement-04nov99.htm>

registry TLD zone servers, and dissemination of TLD zone files.” Registries do not have a relationship with end-user domain name owners.

Registrars<sup>41</sup>, on the other hand, provide domain name registration services to domain name holders. The importance of the DNRI (which includes registries and registrars) to the development of ICANN, cannot be understated especially with respect to the gTLD space<sup>42</sup>. The critical impact of commercial entities on setting the policy agenda, its implementation and review is clear throughout the research.

Subsequent SOTD reports show that there was little movement between the registrars with majority market share but that there was a decline in the number of names under management. For example, the Fourth Quarter 2001 Market Review<sup>43</sup> showed a significant reduction in the number of names in the .com, .net and .org registries as well as a significant re-alignment of registrar market share positioning. The former was due to deletion of expired famous names that were not likely to be renewed; the latter to a significant reduction in domain name registration pricing.

Over the course of the research, the registrars were significantly affected by the downturn in dot com industries, reflected in the reduction of speculative name registrations; a decline in the number of on-line businesses; a contraction in venture capital funds and a significant re-alignment of the value

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<sup>41</sup> A full list of ICANN accredited registrars can be found at <http://www.icann.org/registrars/accredited-list.html>. Other registrars, such as those in Australia or Canada are accredited by .auDA (<http://www.auda.org.au/registrars/>) and CIRA respectively.

<sup>42</sup> This section of the ICANN website explains the hierarchy of the Domain Name System and its implicit global demographics. <http://www.icann.org/tlds/>

<sup>43</sup> Found at <https://www.sotd.info/sotd/content/documents/sotdYrEnd01.pdf>

of on-line businesses. Cassidy's comprehensive statistics illustrate these trends<sup>44</sup>.

The DNRI is a sub-set of more general electronic commerce. Historical OECD data is used here to provide a snapshot of electronic commerce across OECD member countries. ". . .the best definition of e-commerce is. . .the broadest definition: any transaction over the Internet involving the transfer of goods, services, or information, or any intermediary function, which helps enable those transactions."<sup>45</sup>

OECD data<sup>46</sup> for October 2001 indicates that during the 1980s and 1990s, information and communications technologies investment (ICT) "contributed between 0.2 and 0.5 percentage points per year to economic growth, depending on the country." The OECD's comparative study of nine OECD member countries demonstrated that all countries (including Australia, France, Italy and Japan) benefited economically from ICT investment. The OECD study also found that "ICT diffusion plays a key role and depends on the right framework conditions, not necessarily on the existence of an ICT producing sector" which means that, in the case of electronic commerce service provision, that a flexible, market-driven regulatory structure produces gains even if there is no production of hardware or computer chips or other manufactured goods. During the course of the OECD study, the United States experienced significant economic growth and, with reference to the sector under examination here, drove significant investment in on-line industries. Cassidy's statistical

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<sup>44</sup> Cassidy's statistics are found in the Appendix (pp370-385) of his 2002 work.

<sup>45</sup> The full text of AT & T President Michael Armstrong's paper can be found at [http://www.internetpolicy.org/briefing/3\\_00.htm](http://www.internetpolicy.org/briefing/3_00.htm)

<sup>46</sup> Found at [http://www.oilis.oecd.org/oilis/2001doc.nsf/LinkTo/DSTI-DOC\(2001\)7](http://www.oilis.oecd.org/oilis/2001doc.nsf/LinkTo/DSTI-DOC(2001)7)

work is most useful because it illustrates historical share market pricing that is hard to find on either the NASDAQ or New York Stock Exchanges where most dot com companies are listed. Cassidy's analysis shows the hyper-increase in share market pricing, in market capitalisation and in the dramatic fall in share prices which maps to the life of the research conducted here (Cassidy 2002: 370).

The OECD also track data on electronic commerce transactions. The OECD uses a narrow definition of electronic commerce which is useful here and constrains the research to the technology<sup>47</sup>.

The remaining statistics and data which support the analysis are unique to this work and are found in full in the Appendices.

## **Technical Overview**

There are many explanations for how the Internet, as a network, actually operates. There are three separate sources of information that provide a full picture. These are Dr Vint Cerf's website<sup>48</sup>; the RFC series hosted by the Internet Society<sup>49</sup> and the information found on a variety of technical websites<sup>50</sup>.

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<sup>47</sup> "An Internet transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, governments, and other private or public organisations, conducted over the Internet. The goods and services are ordered over those networks but the payment and delivery of the good or service may be conducted on or off-line". Found in *Measuring the Information Economy 2002, Annex 4*.

<sup>48</sup> Found at [http://global.mci.com/resources/cerfs\\_up/](http://global.mci.com/resources/cerfs_up/).

<sup>49</sup> Found at <http://www.isoc.org/standards/> and which also includes notations on which groups are involved in setting technical standards.

<sup>50</sup> For more technical treatment of this section, some basic explanations can be found at <http://www.mids.org/works.html> and at <http://www.gipiproject.org/how/>.

## **Internet Governance: A Brief History<sup>51</sup>**

This section puts in context the Internet as a system and the Internet as a manifestation of what it does. There are many good general histories of the Internet, most notably by Hafner & Lyon, Berners-Lee and Fischetti, Kahin and Nesson, Winston and Reid.<sup>52</sup> These books have informed the research as they provide the broader context of the Internet including its technical roots, its policy impacts and its social and cultural values. For the purposes of the research here though, the most interesting aspects of those works is that which touches on technical standards and protocols as a form of rulemaking.

The Internet is two, sometimes conflated, ideas. The first is the network layer of a collection of computers, telephone lines and equipment. The second is what the Internet does. The Internet, as the DNS, enables disparately located devices to communicate with each other. It also facilitates the easy use of a wide range of applications such as e-mail, music and video downloads and information transfers.

I focus here on what the Internet is, the network, not what it does, the applications. ICANN, as the global technical regulator, is responsible for a variety of functions that were, prior to its formation, the responsibility of the US Government through the Internet Assigned Numbers Authority (IANA). IANA is "dedicated to preserving the central coordinating functions of the global Internet for the public good".<sup>53</sup> As this work is about

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<sup>51</sup> The Internet Society provides comprehensive history and background at <http://www.isoc.org/internet/history/>.

<sup>52</sup> Also of interest is Rhonda Davila's chronological, on-line history found at <http://www.sat.lib.tx.us/Displays/itintro.htm> and Vint Cerf's MCI website found at [http://global.mci.com/resources/cerfs\\_up/internet\\_history/](http://global.mci.com/resources/cerfs_up/internet_history/).

<sup>53</sup> IANA's website is found at <http://www.iana.org/>



the orderly development of globally applied standards and norms, which I call global governance of the Internet, rather than law which is driven by jurisdiction and legislation and a clear sense of physical place, a discussion of technical governance is helpful.

Technical governance of the Internet is characterised by a collection of collaboratively developed network standards relevant to every part of the Internet, whether that is the generic top level domain name space including .com, .net, .org or the geographic country code top level domain name space<sup>54</sup>.

The RFC series is critical for two reasons. The RFC series is a key part of Internet history. It identifies key actions, technical developments and the emergence of standards and protocols for operating the DNS.

The RFC series demonstrates unequivocally that the Internet, as a network, has been 'governed' for more than 30 years. The first RFC was issued on 7 April 1969 and RFCs are still under development through the participation of the experts in the Internet Engineering Task Force, assisted by members of the Internet Society and, in the current configuration, input from the ICANN community. Critical here is an understanding of the culture of volunteerism, the culture of global involvement in the setting of technical standards and protocols and a philosophy of limited involvement from governments. Volunteerism and a commitment to making a system work has, over years, been overtaken by a commitment to business objectives and commercial imperatives.

Arguments about whether the Internet should or shouldn't be governed are not relevant to this work. Perry Barlow and

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<sup>54</sup> The full list of country codes is found at <http://www.iana.org/cctld/cctld-whois.htm>.

other cyber libertarians have perhaps failed to recognise that, with respect to the technical management of the DNS, there has always been regulation of the Internet as a technology rather than an application. The libertarians argue, amongst other things, that there should be little government intervention; little constraint on individual freedom and liberty; robust privacy protection; limitations on spam and, for those concerned with pornography, control of undesirable content. These are all issues that fall within national jurisdiction and are the responsibility of domestic governments. They are outside the scope of the dissertation as they reflect what the Internet does, not what it is.

The critical finding in this part of the research is that the results describe the shift of privately held, publicly funded Internet architecture, used historically by academic and research institutions, to publicly managed, privately commercialised assets governed by a complex body of representatives from a broad global base.

The most critical shift is from the governance by RFCs to more readily accessible and institutionalised policies and procedures which now have commercial and operational impact. The RFCs<sup>55</sup> are a series of standards, discussed and developed by a small group of engineers and software experts. In the early days of the development of Internet protocols such as the Transmission Control Protocol (TCP) and IP, the rulemaking was the preserve of those within a small sector of particular academic faculties and military institutions around the world, predominately in the USA.

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<sup>55</sup> Found at <http://www.rfc-editor.org/>.

The control of rulemaking and its perceived application and leverage is what is at issue here. The RFCs were, and are still, quite tightly controlled and governed by a set of publication standards, a set of discussion principles and a set of principles which enables the enactment of an RFC once it is agreed. Historically, the key contributors to RFCs were the developers of a system of networking that enabled access to information located in diverse places such as university research laboratories, for example, at the University of Southern California where Dr Jonathan Postel did much of his work.

There was little need or incentive for that system of rulemaking to be any more public than it was, that is, it was essentially privately developed within public institutions and was not subject to broad global scrutiny as is the case with ICANN's decision-making processes.

The RFC process and the work of the IETF is closely tied to that of ICANN and the Address Supporting Organization (ASO)<sup>56</sup> and the Protocol Supporting Organization (PSO)<sup>57</sup>. ICANN uses these expert technical organizations to ensure that "its authority in the assignment of naming and numbering resources" is consistent and robust<sup>58</sup>.

The relatively simple work (in terms of its administration) of the RFC process has been markedly complicated by the pressure of developing a regulatory model that reflects broader interests, such as those of individual users, corporations, academic entities and the civil society lobby. This complexity is most obviously seen in the Supplementary Material

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<sup>56</sup> Found at <http://www.aso.icann.org/>.

<sup>57</sup> Found at <http://www.pso.icann.org/>.

<sup>58</sup> The author is grateful for examiner's comments on this area of the work.

documentation which is discussed in detail below and which is reproduced in full in the final section of the work.

## **Legal Studies**

Much of the legal debate around the protection of intellectual property is interesting for two reasons. The first is that it focuses discussion on the retail end of the domain name industry, that is, who owns the right to use a domain name. Secondly, it highlights how little is written on the management of Internet network resources and the disputes that arise in the course of that activity. Control of the root is the most important aspect of DNS governance and the reason why wrestling for control of ICANN continues. Mueller and Lessig have been at the forefront of this area of work. It seems that the struggle for control of the definitive root (or, more precisely, the only accurate directory with all the names and numbers in it) has been won by ICANN. Those that propose alternate roots have been given some attention but this has been replaced by tacit agreement that ICANN and its directory is the definitive source of network resources. As such, ICANN has the major responsibility to manage technical policymaking.

Sound management and regulation of global network resources makes good sense, technically, politically and socially. That much of the literature has focused on the protection of intellectual property points more to the success of trademark lawyers and their large clients in dominating and influencing the debate rather than any logical attribution of merit to their arguments over those of the engineers. The other side benefit of an examination of legal resources is better understanding of the drift away from legislative solutions (which require legislation, applicable within a jurisdiction, and a constituency to support it) to regulation that is predicated on mechanisms such

as codes of conduct, standards and industry self-regulation where governments of many countries have, in large part, withdrawn from the traditional regulatory role.

However, ICANN's continued negotiation by contract is an interesting legal aberration. It is one that has caused ongoing legitimacy problems and has attracted "only in the USA, California jurisdiction, exclusivity" criticisms from those outside that limited geographic area. In ICANN's early phase, much of its work was done by a few key personnel<sup>59</sup> which has created (or fostered) a bottleneck of personality over process, particularly with respect to the introduction of new gTLDs. For example, two figures stand out. Former Chief Policy Officer Andrew McLaughlin and General Counsel Louis Touton. In ICANN's defence, one can, see the need for tight contracts in a generally litigious society like the US<sup>60</sup>. However, that is not global governance, based on consensus and bottom-up policy development. It is governance by personality rather than by clearly defined process. It is not necessarily objective and may be prejudiced against entrants from areas outside the US.

### **Critical documents**

The following documents are critical to the research and analysis found here. They are included in full in the Supplementary Materials and have informed the direction of the work. The documents also serve to constrain the research. The

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<sup>59</sup> The key personnel are listed in the Glossary with an explanation of their titles and qualifications.

<sup>60</sup> Further exploration is necessary of an alternative view which may reflect ideas that a more legalist approach is part of a transition to formal rulemaking which requires the formation of a bureaucratic structure with objective rules for decision making. Despite a stated policy that negotiations should be open and transparent, commercial contracts which bind ICANN and its contracting entities do not allow the release of commercially sensitive information.

July 1997 *Framework For Global Electronic Commerce* provides the policy context for the policy principles from which ICANN is constructed. The subsequent July 1997 *Request For Comment on DNS Administration* demonstrates the focus of intentions to formulate an organisation with a technical function rather than a global Internet government. The February 1998 *Proposal to Improve the Technical Management of Internet Names and Addresses* delineates the US Government position as to which functions and responsibilities were to be transferred to the new ICANN entity whilst, at the same time, seeking a broader public consultation.

The June 1998 *Statement of Policy on the Management of Internet Names and Addresses* takes into account public comment and proposes transitional arrangements that reflect broader governance and finally, the November 1998 *ICANN and Department of Commerce Memorandum of Understanding* gives effect to the policy context, the public discussion and the momentum to move towards industry self-regulation with defined methods of articulating and implementing policy. The May 1999 *Governmental Advisory Committee Operating Principles* reflects the way in which governments can interact with ICANN and affect interaction between the organisation and a diverse range of government representatives. They are included in full as they are central to the discussion of regulatory relevance in Chapter Five.

## **Commentary**

One of the challenges of this research has been the lack of scholarly and academic writing about the Internet which meshes the political, policy and technical aspects of the Internet network. This presents an opportunity to contribute to the scholarship. The concentration on the technical aspects of

Internet and the mandate of ICANN constrains the research. The DNRI has evolved from the commercialisation of network resources and the creation of business opportunities as a consequence of the network configuration. Governments have endeavoured to integrate domestic policy with the availability of Internet access which involves significant domestic policy setting and the integration of those policies in a global system.

This work's fundamental contribution is its exploration of global technical regulation by the private sector, the influence of corporations and the interests of governments.

I turn now to the hypothesis for the research which has been tested and proven.

## **Hypothesis**

The hypothesis is characterised by three components. The first is:

*That national governments are losing both the right and the ability to regulate for the resolution of disputes in the domain name system*

I test the notion that "the nation-state remains our fundamental unit of government" but that "transforming the business of government is now an accepted necessity" (Ticoll 1999: 1). In Chapter Five, I examine whether national governments are withdrawing from some regulatory tasks, in particular, the management of DNS network resources. This is most definitely the case with DNS governance in Australia. Australia's approach to DNS governance is set out in Chapter Seven. In the context of global DNS governance, the right and ability of national governments to regulate for the creation of policies and procedures and the resolution of disputes in the domain name industry is almost nil. Within the structure of ICANN, the GAC is the only way in which governments, at a

global level, can effectively influence any ICANN outcome. The GAC is, however, an advisory body. It has no sanctioning power, its meetings are not attended by all governments and the proceedings of its closed meetings are broadcast to the Internet community by a post-meeting communiqué. It is dominated by Australia (which provided a chairman and secretariat services for several years), the US, Canada and the Europeans<sup>61</sup>, all of whom are first world economies.

On a domestic level, I examine as a case study the approach Australia has taken. It is instructive because, after a few false starts, the system is working well, is inclusive, is relatively un-controversial. It follows the principles of open and transparent processes to which ICANN aspires and has delivered real results such as the introduction of competition at both the registrar and registry level, technical stability and comprehensive stakeholder acceptance.

In this context, the Australian Government deliberately sought to remove itself from DNS governance and disputes surrounding the management of network resources, principally those associated with control of the .au root server and WHOIS directory.

The second part of the hypothesis is;

*That the regulation of disputes in an electronic marketplace is moving towards arrangements financed and enacted by the private sector and that, in return for the financing of that regulation, the private sector require a commitment from government to more flexible regulatory responses*

The electronic marketplace that I refer to here is the DNRI. I have tested the idea that corporations have both been

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<sup>61</sup> Australia has provided both a Chairman and Secretariat services since the inception of ICANN. Key personalities include Dr Paul Twomey, now former DOC representative J



forced and have forced the shift to industry-led, market-dominated regulation at the expense of governments. This is discussed in Chapter Six on corporate strategy and regulatory modelling.

And finally,

*That the regulatory treatment of the DNS illustrates a fundamental and irrevocable shift away from centralised government regulation to private sector driven regulation*

The hypothesis is considered in tandem with a set of concepts which, taken together, have shown the hypothesis to be tested and proven. Despite moves by ICANN's Evolution and Reform Committee there is, as yet, little effective change to include governments in a more meaningful way.

## **Conceptual Framework**

There are three concept sets. The first concept is a consideration of globalisation, national sovereignty and impact of supranational organisations such as ICANN. The sovereignty of national governments is not under question. However, the changing nature of what is within the power of a national government and what control mechanisms are developing outside that realm are integral parts of the work. Jayasuriya's work on the shifting, rather than static, nature of globalisation is highly instructive as is Sassen's work on globalisation and accountability. The impact of the formation and activities of supranational organisations (organisations beyond the bounds of one nation) are particularly important as background for the discussion of ICANN in Chapter Four. Some examples of supranational organisations are the ITU, the WTO, WIPO and the APEC Telecommunications Working Group (APEC TEL WG).

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Beckwith Burr (and later Ms Karen Rose), Canadian representative Len St Aubin, and European Commission representative, Christopher Wilkinson.

ICANN is idiosyncratic because of its constitution, its by-laws, its procedures and mandate. As yet, parallels to other international agencies have not emerged because it is still in a formative phase and operates under different rules than multi-lateral treaty organisations.

The second concept is a consideration of what I have termed govern\*. This is the separation of governments from governance. Governments have traditionally constrained and regulated behaviour, both market and personal, within their jurisdiction. Governance is determining ways of behaving that are applied to institutions (for example, by the World Bank in a process of institution strengthening or the airline industry to protect safety standards). Governance can be both institution-derived such as through the ITU or industry-agreed technical conformance and safety standards.

The third concept considers different kinds of rules or legislation versus regulation. Legislation is devised by governments. Regulation can be derived from government but in the case of ICANN, regulation is derived from a variety of sources. These include software code and standards; from ICANN contracts which are the ticket to DNRI market entry and the philosophical and policy commitments by a variety of governments that the technical management of the Internet network should reside in the private sector.

Within these three concepts sit four equations which are balanced throughout the work. They are the notions of ownership and stewardship; control and trusteeship; international governance and national government and finally, non-commercial and commercial use of Internet resources.

I have set aside claims that the Internet shouldn't or can't be regulated. The formation of ICANN illustrates that there was a clear intent across a range of stakeholders to regularise the

governance of the DNS. The network layer has always been governed by standards, by processes and by procedures confined, in the main, to technologists and engineers who made a system work. Now that the Internet is highly commercial, an understanding of the impact of governance models on developments in the architecture and on applications is critical.

ICANN, as a technical management body, is rightly unconcerned with matters of content regulation or free speech and democracy. However, as more recent discussion has shown, ICANN is not just a technical management organisation.

The concept sets then provide a frame of reference to consider how regulation is developed and what constitutes influence drift. The concept sets also provide some way of mapping influence drift. They extend Sassen and Jayasuriya's work on the fluid nature of regulation.

## **Key Terms and Definitions**

Much of the terminology for the research is technical and is reflected in the Glossary. It reflects the influence of highly experienced engineers, lawyers and other professionals. The language also reflects an Internet culture which has spawned all kinds of arcane terms, such as blog, streaming, squatting and flaming. Other terms have been developed in the popular press or as part of policymaking exercises such as the digital divide, information superhighway, homesteading and cyberspace. These are not relevant here except insofar as they indicate a time of innovation and one which has attracted much media attention and policy reflection.

The latter terms, most particularly, have conceptualised the Internet as an undefined electronic space, without rules and indeed, without the need for rulemaking. I contend that this is neither the case in theory nor in practice.

The Internet as a network and as a series of protocols is bound by rules because without rules or standards, the network doesn't function. Now that the Internet is mission-critical to many businesses and is indispensable to a wide variety of users as a communications tool, it is clear that there must be effective rules that ensure that the system is stable and reliable. There may not be jurisdiction, legislation or courts but there are certainly rules. There are rules that govern how a network works and rules that govern on-line behaviour. With respect to the latter, that may be manifest in simple network etiquette or other, more serious, rulemaking that governs contracts, protects consumers and satisfies national governments and their respective policies about on-line gambling, pornography or taxation.

In preparing the research here it was necessary to put together a comprehensive list of terms and definitions that would contribute to simplifying the research results and to making the research accessible to non-specialist readers. A comprehensive glossary has also been prepared and, for easy reference, is found at the beginning of the document.

Words and phrases that are found throughout the work are set out below.

**Global** meaning not restricted to one country but not necessarily relating to all countries with equal application at the same time.

**Global regulation** is that which applies to an industry on an ubiquitous basis in any country in the world. The DNS is, for the purposes of this work, the central structure which is regulated in the same way wherever you are in the world using gTLD names such as .com, .net and .org names. The name registration rules and policies of geographic TLDs, or more commonly, country code top level domains (ccTLDs) are

different. The code that runs the network is, however, globally applicable.

**Globalisation** Lewis & Slade (1997: 276) argue that there are four key elements to globalisation: deregulation, privatisation, communications technology convergence and global cultural flows. Held provides a useful definition and also includes related terms in his analysis.<sup>62</sup>

Globalization can be conceived as a process (or set of processes) which embodies a transformation in the spatial organization of social relations and transactions, expressed in transcontinental or interregional flows and networks of activity, interaction and power (see Held and McGrew, et al, 1999). It is characterized by four types of change. First, it involves a **stretching** of social, political and economic activities across frontiers, regions and continents. Second, it is marked by the **intensification**, or the growing magnitude, of interconnectedness and flows of trade, investment, finance, migration, culture, etc. Third, it can be linked to a **speeding up** of global interactions and processes, as the development of world-wide systems of transport and communication increases the velocity of the diffusion of ideas, goods, information, capital and people. And, fourth, the growing **extensity, intensity and velocity** of global interactions can be associated with their deepening impact such that the effects of distant events can be highly significant elsewhere and specific local developments can come to have considerable global consequences. In this sense, the boundaries between domestic matters and global affairs become increasingly fluid. Globalization, in short, can be thought of as the widening, intensifying, speeding up, and growing impact of world-wide interconnectedness.

**Marketplace** is a term that has traditionally implied a physical location. For the purposes here, a marketplace is principally an on-line, electronic space which is not defined by geographic or physical boundaries. In terms of the trade in domain names, most transactions happen online using credit card facilities and a simple web interface.

**Electronic commerce** “. . .the best definition of e-commerce is. . .the broadest definition: any transaction over the Internet involving the transfer of goods, services, or information, or any intermediary function, which helps enable

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<sup>62</sup> <http://www.polity.co.uk/global/globocp.htm>. Emphasis added.

those transactions."<sup>63</sup> The DNRI is a sub-set of electronic commerce.

**Meetings** are both virtual and physical. In terms of ICANN's meeting schedule, the meetings take place in a rough rotation around the world to ensure, as far as possible, a wide variety of ICANN constituents can attend. The meetings are also accessible in real time on the Internet.

**Disputes** about market place behaviour, such as anti-competitive conduct, misleading and deceptive conduct or cybersquatting can be resolved physically or virtually. In this case, disputes means those which relate to internet protocol policies and standards, not disputes about the ownership of domain names.

**Influence drift** is a phrase used to describe the way in which influence over regulation is changing. The phrase is applied to the drift from governments to private sector regulatory agencies, from personalities to processes as processes mature, from the corporate sector to regulatory agencies, domestically and internationally.

**Internet** is a sophisticated distribution network for content, a facilitator of commercial transactions, a unique world of ideology and philosophy. The Internet is also a technology, a network, and a highly developed cultural icon. For the purposes of this work, I focus on the network layer of the Internet, not the applications which run on it.

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<sup>63</sup> The fuller definition can be found at [http://www.internetpolicy.org/briefing/3\\_00.htm](http://www.internetpolicy.org/briefing/3_00.htm), which is the full text of Armstrong's views.

## **Key Actors and Corporations**

The glossary provides a detailed overview of key people and corporations. The data in Appendix Two provides a comprehensive overview of the wide variety of corporations that have been involved in ICANN meetings and discussions. The identification of key personalities and corporations is important because, whilst ICANN strengthens its policies and procedures, the power and influence of individual actors and corporations is important. The transition to more objective regulatory criteria, such as a standard country code top level domain name space contract will mean that process is strengthened and the power of personality will decline. As recent writing about digital divides demonstrates, there are still only a small number of people actively involved in Internet governance, despite the attempted development of a global Internet community.

## **Methodology**

The work has been undertaken through a process of comprehensive textual analysis in tandem with professional work in the industry on a variety of levels. Most of the actors, corporations, institutions and processes are well known professionally. Statistically, information has been collected using publicly available data, supplemented by analysis from a variety of sources including the investment industry, the specialist domain name industry analysts at SnapNames.com who source their data from the DNS WHOIS tables.

## **Research Scope**

The data for the research is constrained by information between November 1998 and November 2001. The literature for the research is current to December 2002.

I turn now to Section B of the dissertation which sets out the core research findings.





## ***SECTION B – CORE RESEARCH***

This section contains the chapters which contribute to the originality of the research and the key findings. The chapters are focused on using the literature, the conceptual framework and the concept sets in tandem with data which has been collected. They are used together to test and prove the hypothesis that national governments are losing both the right and the ability to regulate for the resolution of disputes in the DNS; that the regulation of disputes in an electronic marketplace is moving towards arrangements financed and enacted by the private sector and that, in return for the financing of that regulation, the private sector require a commitment from government to more flexible regulatory responses; and that the regulatory treatment of the DNS illustrates a fundamental and irrevocable shift away from centralised government regulation to private sector driven regulation.

I turn now to Chapter Three which discusses a transition from numbering to naming which demonstrates the decline in policy importance of numbering and the rise of naming. The chapter leads to a new philosophy of naming and highlights some changes in the way we think about the value of domain names in the context of the DNS.

## CHAPTER THREE – NUMBERS TO NAMES OR IP VS IP®<sup>64</sup>

*The Domain Name System (DNS) is a distributed Internet directory service. DNS is used mostly to translate between domain names and IP addresses, and to control Internet e-mail delivery. Most Internet services rely on DNS to work, and if DNS fails, web sites cannot be located and e-mail delivery stalls.<sup>65</sup>*

### Introduction

This chapter is about influence drift between numbers and names, from one IP to another. It also demonstrates a drift from the ITU, a technical regulatory organisation, to WIPO which is more concerned with intellectual property ownership.

Internet Protocol numbers (the first IP) are critical to the functioning of the DNS. IP numbers are the unique number string used to identify devices connected to the network and ensure that users can find Internet addresses reliably and quickly<sup>66</sup>.

Managing this function is central to ICANN's mandate. Intellectual property is the second IP or, to prevent confusion, IP®. IP® has overtaken IP as the main policy and economic driver of ICANN's work. IP happens as a matter of technical imperative and IP® drives some of broader policy functions

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<sup>64</sup> This chapter is to be submitted to *First Monday*, an online peer reviewed academic journal. <http://www.firstmonday.org>.

<sup>65</sup> From <http://www.dns.net/dnsrd/>, the DNS Resources Directory.

<sup>66</sup> In a March 2003 paper delivered to the ITU, the Council of European Top Level Domain Registries (CENTR).

around which ICANN's work is centred, such as name registration policies, the use of registrant information and the nature of WHOIS tables.

This influence drift and the focus on domain names rather than numbers demonstrate a clear shift from the technical management of a numbering system to the policy and politics of the allocation of names. The right to allocate names falls into two parts. The first is the right as an accredited registrar to sell names to end-user registrants. The second is the right of an accredited registry to put those names into the root server. This is important because ICANN's mission is about coordinating the allocation of globally unique identifiers such as domain names and numbers. It coordinates the activities of registries and registrars.

Domain names now have invested in them a set of values vastly different to the value of the DNS itself and the numbers that enable the DNS to work. Taken together, the rise of importance of domain names and the system itself leads to a new philosophy of naming which extends the literature on both the value of the DNS and the value of names themselves. This is what I have called IP versus IP®.

IP® seems to have become the more dominant force and, to explain this conclusion, I have set out three key sections to this chapter. The first is a discussion of the DNS as a directory service. The second discusses the value of domain names and methodologies for determining that value. The third discusses the impact on ICANN's focus on the allocation of numbers and names.

There are three other critical factors. Firstly, it is specifically part of ICANN's mandate to introduce competition in the provision of domain name registration services.

Secondly, one of ICANN's key pieces of work has been the introduction of new gTLDs to increase the domain name space and, as a consequence, to make available more names to sell. Thirdly, the power of IP® holders has been central to ICANN's policy making initiatives about the way in which domain names, as a reflection of intellectual property assets, can be used. That power concerns setting policy for the registration of new names; for the control of cybersquatting; for rise in defensive registrations and for the development of UDRP. The general unevenness of national approaches to robust intellectual property protection also demonstrates another shift of regulation from governments to the private sector (and the strengthening of truly global markets) as IP® owners have sought to invest ICANN with the power to resolve disputes about the right to use domain names.

We, perhaps, have a new way of thinking about names in general and about domain names in particular. Control of the rulemaking for naming and the management of the effective use of technical assets to resolve unique numbers to unique names is critical to understanding the importance of the shift from IP to IP®.

### **The *Framework*: Early Directions**

The policy context for the discussion of a contest between IP and IP® is evident in one of the critical foundation documents of the thesis.

The July 1997 *Framework for Global Electronic Commerce* says that "An Internet domain name functions as a source identifier on the Internet. Ordinarily, source identifiers, like addresses, are not protected intellectual property (i.e., a trademark per se). The use of domain names as source identifiers has burgeoned, however, and

courts have begun to attribute intellectual property rights [and therefore property and monetary value] to them, while recognizing that misuse of a domain name could significantly infringe, dilute, and weaken valuable trademark rights<sup>67</sup>.

Throughout the following sections, I track the extent to which the perceived value of domain names as intellectual property assets is increased by the successful application of special domain name registration privileges in the new gTLDs. The sunrise provisions in new gTLDs to enable famous name and trademark holders to register in a early rush on names is important in the valuing of names. It means that defensive registrations can be made which shut out ordinary users who may, for example, have a legitimate claim to a famous name because it reflects their own business name or identity. For example, Nissan, the car manufacturer, successfully wrested control of [www.nissan.com](http://www.nissan.com) from Mr Nissan.

I examine what this policy has done to the value of the DNS as a directory service and to the value of the right to use a domain name. It is necessary to go back several steps before the policy discussion can take place to put in context the technical characteristics of a network directory service.

### **The Domain Name System: Simple Directory?**

In determining a more robust philosophy that underpins the valuation of domain names, I consider the intrinsic value of the DNS and its characteristics as a database of unique numerical identifiers. The DNS is now viewed as much more than a simple look-up table with numbers that identify disparately located computers or other devices. However, the

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<sup>67</sup> The *Framework* does not have page numbers. The reference is found in the Section 4 under the "Trademark and Domain Names" sub-section.

DNS is not the only directory service in use. X.500<sup>68</sup> was the internationally agreed standard for naming and addressing under the OSI model, sponsored largely by the telecommunications industry through the ITU. Indeed, complete systems were established using the X.500 directory services.

Until 1990, there was a possibility that the global Internet wouldn't become more readily accessible to the general public because telecommunications companies were pushing X.500. The X.500 could and did perform the same service as the DNS. X.400 and X.500 were international standards and telecommunications companies wanted to leverage their voice telephone systems into systems that serviced data.

Both global and national networks were established. In Australia, Telecom's (now Telstra) packet switching service was called AUSTPAC. There were two completely separate services, the Internet architecture and the OSI architecture for networked systems. There were also a number of proprietary schemes, for example, IBM's Systems Network Architecture (SNA), Digital Equipment Corporation's DECNet and CompuServe. America OnLine (AOL), a comprehensive private network aimed at the general community rather than the corporate sector, dealt with resource identification challenges by developing catalogue style directories and a system of key words. The Microsoft Network (MSN) was also developed with its own architecture and provided gateways to the Internet through what became known as portals to the wider Internet network.

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<sup>68</sup> <http://www.itu.int/ITU-T/studygroups/com17/sg17-q9.html>

From these early attempts at private networks and directory services offerings, the Internet emerged as the preferred technology. As a consequence, ICANN really started to matter in 1995, when the Internet became more commercially critical to a wider range of businesses, outside the early grouping of research and academic institutions.

Even though the DNS was already in universal use, the rise of Mosaic<sup>69</sup>, Berners-Lee's World Wide Web, and other search engines made the Internet more user-friendly. With that usability, the desirability of owning a domain name increased dramatically.

The DNS, as a directory service of unique electronic identifiers has received rapid and comprehensive market acceptance. Market acceptance has been critical to the success of the DNS as a system. In a commercial sense, this is most clearly evident by analysing the impact of corporations on the development of ICANN (discussed in detail in Chapter Six).

Structurally, and this is why ICANN has attracted such interest, there is intrinsic value in the control of policies for the tables that perform the mapping function that resolves IP number strings to domain names.

Two key processes then took on greater momentum. These are the development of the DNRI and the identification of value in domain names as another manifestation of intellectual property rights and assets.

In a short space of time, the usability and attractiveness of a simple address book of names and

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<sup>69</sup> The press coverage of the tenth anniversary of Mosaic features some critical commentary by Vint Cerf, now Chairman of ICANN. Found at <http://news.com.com/2009-1032-995680.html>



numbers has grown in importance as its fundamental characteristics yield enormous commercial value to businesses and individual users alike.

Rood's (2000: 1)<sup>70</sup> work on the characteristics of identifiers on electronic networks shows that ". . . Identifiers on electronic networks such as telephone numbers, domain names, IP-addresses and e-mail addresses are not only necessary components of information and communication technology (ICT) applications, but they have also become a new kind of information good that can be traded separately". He argues that identifiers such as IP numbers "cannot be treated with standard information goods theory; they have very different economic and technical characteristics. The main characteristics are excludability, network externalities and the lack of scale advantages in the daily operations of an identifier system."

I will deal firstly with uniqueness, or to use Rood's description, 'excludability'. He rightly argues that there has been extensive and heated debate about the right to use a domain name. A domain name is not actually for sale<sup>71</sup>.

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<sup>70</sup> There are two key papers. The July/August 2000 paper on characteristics of identifiers on electronic networks. This paper has no page numbers and the page references are approximate. Rood's other undated paper is called "Are naming and numbering systems natural resources?".

<sup>71</sup> Strictly speaking an individual or organisation does not own a domain name (or the underlying internet protocol address); domain names are held by registrants (domain name holders) who are granted a licence by the registry (which holds the list of names and corresponding numbers) to use the domain name. Registrars have a direct relationship with the end-user which buys the license to use a name and transfers that licence when it is no longer required. The name itself is not sold; the right to use it is.

That licence is similar to the licence for a specific telephone number. In practice, it is common to refer to ownership and sale of domain names. Commercial interests have taken a robust view of 'ownership' versus 'licence', regarding them as an intangible that is analogous to intellectual property. The monetisation of domain names as intangible assets is complex and it includes the development of methods of valuation for sale, as an asset in commercial lending and as a good which is owned rather than

Instead, the right to use it for a specified period is on offer. Property rights are not naturally vested in leasing arrangements. Fights about those names that “embody” either trademarks or famous names have created the most contentious discussion within ICANN and the Intellectual Property Constituency and international agencies, such as WIPO, to whom ICANN has outsourced the resolution of disputes about domain name usage rights. Rood shows that “. . . analysis of Domain Name registration statistics show substantial effects of policy reform on the growth in registered Domain Names.” (Rood 2000: 1)

Rood also argues that, with respect to payments for domain names, “the question of who assigns and withdraws electronic identifiers has become a significant economic and policy issue. . .” (Rood 2000: 2) I move, however, too quickly to what the network does rather than what it is. I return to the value of domain names later in the chapter.

Historically, the ITU<sup>72</sup> has been instrumental in managing the global telephone numbering system. The model for control has been for government agencies and

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used. Attempts to establish a market in name-futures and other derivatives, and recognition in formal valuations of dot com enterprises (reflecting developments in accounting practice such as aggressive valuation of newspaper and magazine mastheads) are an important aspect of debate about intellectual property, not the technical management of the DNS.

Changes to concept of names as property have been reflected in jurisprudence and legislation. For example, the US *Anti-Cybersquatting Protection Act* specifically identifies names as property, to the extent that its *in rem* provisions provide for action against the name rather than the registrant. Particular US Federal circuit courts have taken a sharply different view, with Justice Ware denying that a domain is property, as it is the equivalent of a telephone number.

More detailed sources about the possibilities of mortgages for domain names can be found at ([news.bbc.com.uk/1/hi/english/sci/tech/newsid\\_533000/533455.stm](http://news.bbc.com.uk/1/hi/english/sci/tech/newsid_533000/533455.stm) and [www.iplender.com/qa.html](http://www.iplender.com/qa.html)).

<sup>72</sup> The ITU has been involved in standardising a variety of global numbering identifiers. For example, see <http://www.itu.int/ITU-T/inr/index.html>.

private sector representatives to work through policy, standards setting and enforcement on a multi-lateral basis. The numbering system on which the telephone network relies is based on entirely different principles of self-organisation, or rather more accurately, industry self-regulation. Rood argues that "...much less attention [than that given to discussion of intellectual property issues] has been paid to the justification of government intervention or abstinence from Internet related identifier policy questions and the establishment of competition in the provisioning of identifiers on the Internet". (Rood 2000: 3) This competition is the key to the derivation of value from the network itself and in the development of new industries that use network identifiers as a tradeable commodity. Competition creates market energy and innovation. It also encourages a reduction in prices and an increase in customer expectations that drives the release of new products and services.

Amongst other things, Rood argues that electronic network identifiers are different from telephone number identifiers especially where "humans must use and remember the identifier, the length is constrained by mnemonic ergonomics". (Rood 2000: 3)

The literature on the use of IP numbers is comprehensive and technical.<sup>73</sup> The RFC series demonstrates the formation of a new set of electronic identifiers over which the ITU had (and still has) little authority. What is obvious

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<sup>73</sup> A full list of RFC documents is found on the Internet Society website at <http://ietfreport.isoc.org/rfc-index.html>. Only a few RFCs become standards. Others, for example, provide information or are historic or experimental.

from the literature is that the DNS rapidly became too large<sup>74</sup> and complex for sophisticated strings of numbers to be any help to a regular user to find what they wanted. The discussion about the difficulty of remembering a small set of numbers (around 400) is found in RFC 799 and suggests an alternative addressing system<sup>75</sup>. This encouraged the development of online browsers and search engines which, most commonly, search for resources by the domain name, not the IP number.

We have then three characteristics. A network of computers and equipment, linked by an interoperable IP, managed principally by volunteers in academic and research organizations. The use of unique numbers to identify devices connected to the network rapidly became too unwieldy. This became acute when the Internet became generally more accessible to the public, when domain names became more desirable and when, around the same time, the National Science Foundation started to cut budget for Internet related research. At the same time, there was tremendous political and commercial pressure to capitalise on the ability of the DNS to do more than provide communications services to the relatively small but global technical community.

The development of domain names as more easily recognisable masks for IP numbers has been a critical part of the commercialisation of both the DNRI and the ongoing

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<sup>74</sup> The Internet Software Consortium (<http://www.isc.org/ds/>) provides a wide array of data on, for example, the number of Internet hosts. The Internet Society (<http://www.isoc.org/>) also provides useful links to statistical information on the Internet. It has also been argued, in understanding the emergence of the world wide web and the rise of the use in domain names rather than numbers, that domain names were a response to the user unfriendliness of purely numerical addressing. See, for example, Cailliau & Gillies (2000), Tehan (1999) and Berners-Lee (1999).

<sup>75</sup> <http://ietfreport.isoc.org/rfc/rfc799.txt>

development of the utility of applications on the Internet such as electronic commerce, electronic publishing and e-mail.

In summary, the first component of value in a domain name is the value of the Internet network, the physical network and the protocols that enables it to function. The primary function of the DNS is its intrinsic ability to uniquely identify Internet resources. There is a differentiation between a functional value and a commercial value. A functional value is defined as having something work as a tool. The commercial value is what the market will pay for a good or service.

### **Deriving Value from the Network and Domain Names**

The most direct and obvious example of the direct value created by the Internet network is the use of domain names. Domain names have become the easy to remember substitutes for the string of numbers which identifies devices (which are not just desktop computers but could, if one believes current advertising, as easily be fridges, PDAs and cars) on the Internet.

In an increasingly commercialised domain name space, the value of domain names as resources, particularly as representations of trademarks or other intellectual property assets, becomes obvious. The growth of an industry concentrating on the sale of domain names soon pushed numbers to one side. This meant that, for all but a handful of specialists, the network was conceptualised in terms of names (and associated resource identification tools such as search engines and directories) rather than numerical addresses<sup>76</sup>.

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<sup>76</sup> There has been little academic study of how consumers and policymakers conceptualise the Internet. For example, an analysis of the way that metaphors

The realisation of the commercial criticality of the Internet has spawned two related debates. The first is that the Internet is critical to many businesses; the second is that those businesses rely on their domain names to be found on the Internet. However, those names (such as McDonalds or Caterpillar or Nike) are, in the offline world, fiercely protected brands and trademarks. The fight for the right to use those special names online and exclusively has added complexity and colour to the debate. It's also driven prices for domain names up; created a speculator's market and driven the development of policy that gives preferential treatment to trademark or famous name holders. Well-resourced trademark owners have a significant economic advantage in exercising their rights to use a name, in spite of first come, first served rules. It is not surprising then to see sunrise provisions for the new gTLDs such as .biz and .info.

To review, this chapter summarises a period of uncertainty, change and rapid growth. It also details the development of a set of values beyond those of the utility of a network that, in its early stages, was designed to link research resources. Separating the functional value of the network from the value of the possibilities of the network is difficult.

Domain names are valuable as identifiers [of information], navigators [to find resources] and as advertising vehicles [of products and services available on-

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such as the 'information superhighway' or 'homesteading the new frontier' have shaped market perceptions and regulatory responses. A comprehensive analysis of coverage in the mass media is outside the scope of this work but the 'discovery' of the Internet by business and consumers appears to date from establishment of simple search engines which enabled ordinary users to find what they were looking for. This searching centred on names rather than numbers. The phenomenon was reflected in contemporary and subsequent comments by IT specialists to the effect that the ability (and willingness) to code and engage with the infrastructure rather than the applications was a prerequisite for digital citizenship.

line]. Names have a use in and of themselves. This has created an enormous amount of discussion about who 'owns' the 'right' to use a domain name. The fact that domain names have become a manifestation of brand names and famous marks has extended the intellectual property dispute resolution literature and has given a value to a string of letters that, before the commercialisation of the Internet network, did not exist.

Finally, domain names registration services are a stand-alone business sector involving, at the international level, some 122 accredited ICANN registrars and, in the ccTLD realm, many thousand more. Those businesses are, in turn, surrounded by a large number of agents, for example, law firms and Internet service providers which extends the retail presence of registrars.

In addition, tracking the derivation of value from the DNS itself is important, as it provides a mechanism for analysing the influence drift between the engineer's camp and the lawyer's camp or IP versus IP®. Lessig, in *Code and Other Laws of Cyberspace*, has described this as the West Coast (engineers) and East Coast (lawyers) divide. His characterization contains both the issues and the approaches to the argument that have arisen from each side. There have been similar characterizations in Europe.

However, the simplistic adoption of Lessig's West-East dichotomy in the popular media and online should be treated with some wariness as it leaves out the less US-centric discussion of North-South issues which the civil society advocates have taken up. Whilst interesting, the North-South divide is not discussed here. It should be noted that the West Coast is the home of the majority of the entertainment and software industries and their associated legal advisors. The

critical importance of lawyers as gatekeepers, deal makers and norm-setters is highlighted in works such as *Understanding Silicon Valley: The Anatomy of an Entrepreneurial Region*, edited by Mark Kenney, and in particular the Suchman chapter on 'Dealmakers and Counselors: Law Firms as Intermediaries in the Development of Silicon Valley'.

However, the engineer's IP and the lawyer's IP® create fundamentally different situations.

The ferment of the intellectual property protection debate prompted an investigation into why names are so important and why ownership of them conferred advantage on some much more readily than on others. This seemed inconsistent with the traditionally first-come first-served domain name registration rules in the .com, .net and .org domains.

I have examined the creation (and extraction) of value in DNS resources and how some of that value is now manifest in the domain name industry. If all names were equal, there wouldn't be a speculative or secondary market for names that are expired or deleted from the registry. In addition, valuation services, naming services and name portfolio management services wouldn't have arisen. The importance here of the discussion of the Wait List Service (WLS) cannot be underestimated as businesses (most notably Verisign and SnapNames) invested enormous regulatory resources in winning the WLS argument within ICANN<sup>77</sup>.

The WLS debate is important for two reasons. Firstly because it is an example of policymaking that, depending on

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<sup>77</sup> See, for example, <http://www.icann.org/bucharest/wls-topic.htm>



the end result, extracts value from the characteristics of the DNS. Use of highly refined software that predicts the availability of domain names (by querying the WHOIS tables) and matches those names with potential buyers has been a contentious issue. Verisign, the operator of the .com registry, was seeking to provide this service in partnership with SnapNames. Verisign is under contract with ICANN to provide the .com registry service. Those registrars against the proposal argue that the provision of the service is an unacceptable alteration of the ICANN-Verisign contract. Regulation by contract is the other reason why WLS issue is interesting here and in the broader research of which this paper is part.

The analysis here does not explore the development in the domain name industry of UDRP, a manifestation of disputes about the right to use a name, not the technical management of the network that enables the electronic identifier to resolve to the name<sup>78</sup>.

With that in mind, the second part of the question then shifts to the value of domain names. Within the assessment of value, I look at both the usability of domain names and the commercial opportunities which the privatisation of the DNS has generated, most notably for domain name registration companies such as Verisign, Register.com, TUCOWS and MelbourneIT. The value of domain names and the valuation processes used to determine value of domain names is highly subjective. Unravelling the subjectivity of measuring value of the network and the valuation of domain names is the core of

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<sup>78</sup> ICANN has outsourced policy for resolving intellectual property disputes to the World Intellectual Property Organisation (<http://www.wipo.org/about-wipo/en/index.html>) and have adopted WIPO's findings.

this chapter. From this, we can make some assessment about the criticality of the control of the policies and procedures for managing the technical resources of the Internet for which ICANN is responsible.

I go back to the value of the network. The value of the DNS lies in the use of TCP/IP which enables computers (and the data they hold) to be connected in disparate locations.<sup>79</sup>

With the basic understanding that IP numbers must be unique, we can move to a more detailed discussion of the implications of this in the context of what the Internet network does for the DNRI.

Firstly, the commercialisation of the provision of registry services and registrar services has created a whole new industry. The Clinton Administration's *Framework for Global Electronic Commerce*<sup>80</sup> very specifically refers to Internet technology as having a "profound effect on the global trade in services". The document also recognises that "...The genius and explosive success of the Internet [actually applications that the Internet network can run] can be

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<sup>79</sup> The ACM Crossroads primer on the foundations of Internet Protocol provides a helpful overview of IP and DNS (found at <http://www.acm.org/crossroads/columns/connector/july2000.html>). IP and the DNS are inextricably linked. The DNS matches computer addresses and numbers. The critical extension to the domain name system is the matching of Internet number addresses to domain names. The Internet network can function without domain names. Users would just have to remember strings of numbers rather than more descriptive and easier to remember domain names. Critically "...every host and router on the Internet has an address that uniquely identifies it and also denotes the network on which it resides. No two machines can have the same IP address. To avoid addressing conflicts, the network numbers have been assigned by the InterNIC (formerly known simply as NIC). . . .Blocks of IP addresses are assigned to individuals or organizations according to one of three categories-- Class A, Class B, or Class C. The *network* part of the address common for all machines on a local network. It similar to a postal code that used by a post office to route letters to a general area. The rest of the address on the letter (i.e., the street and house number) are relevant only within that area. It only used by the local post office to deliver the letter to its final destination. The *host* part of the IP address performs this same function."

<sup>80</sup> Found at <http://dcc.syr.edu/ford/course/e-commerce-framework.pdf>.

attributed in part to its decentralized nature and to its tradition of bottom-up governance.”

For the purposes here, the most important aspect of the *Framework* is the following discussion of standards. “The prevalence of voluntary standards on the Internet, and the medium’s consensus-based process of standards development and acceptance are stimulating its rapid growth. These standards flourish because of a non-bureaucratic system of development managed by technical practitioners working through various organizations. These organizations require demonstrated deployment of systems incorporating a given standard prior to formal acceptance, but the process facilitates rapid deployment of standards and can accommodate evolving standards as well.”<sup>81</sup>

The Clinton Administration’s promotion of private sector leadership should lead and a ‘hands-off’ approach to regulation was both a response to criticisms by other governments (most notably the Europeans) that the US was trying to control the Internet and a recognition of the substantial commercial benefits that would flow to US-based businesses that were moving rapidly to exploit the commercialisation of the Internet network. The value of the network was recognised very early by government policymakers, some of whom had, after all, been responsible for the network through the National Science Foundation<sup>82</sup>.

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<sup>81</sup> The *Framework* document does not have formal page numbers. The quotes here are at the end of the document.

<sup>82</sup> The history of the Internet network, from the National Science Foundation’s perspective, is found at <http://www.nsf.gov/search97cgi/vtopic>. Most notably “...NSF limited the amount of time it would support CSNET. By 1986, the network was to be self-supporting. This was a risky decision, because in 1981 the value of network services was not widely understood.” In hindsight, this changed rapidly. The network itself delivered value as did the applications that could run on it.

Devolving this value to the private sector enabled the network to develop under real-world commercial conditions in addition to enabling other industries, such as the DNRI, to evolve.

This commercial evolution also directed much of the ICANN agenda as the technical management of critical infrastructure increasingly had significant commercial meaning. A good case study of this is the process of adding seven new gTLD spaces, .biz, .info, .pro, .name, .aero, .coop and .museum.<sup>83</sup>

## **Multiple Values for Domain Names**

This analysis is confined to the value and valuation of domain names in the gTLD space, most particularly, those that end with .com. There are four key areas of value for domain names themselves, presuming that we can take as given that the growth of the network has given rise to domain names.

I examine publicly available tools for valuing names. It should be noted that there is a disconnection between the value of numbers as navigation tools and the business models, revenue streams and economic conditions of the domain name industry. It should also be noted that much of the industry information about the valuation of names is anecdotal.

The privatisation of the DNS through ICANN's contract with Network Solutions/Verisign introduced competition into

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<sup>83</sup> ICANN's announcement of the seven new gTLDs is found at <http://www.icann.org/announcements/icann-pr16nov00.htm>. The announcement does not give any sense of the intense competition, lobbying and positioning that went on to win one of the very limited places. This document lists the applicants <http://www.icann.org/tlds/tld-applications-lodged-02oct00.htm>.

the provision of registry services, the control of a large database of IP numbers that match domain names.

The valuation of domain names is a pseudo-science. There is uncertainty, not a little wizardry (as most of the valuers are male) and plenty of pure speculation. Cybersquatters, those that buy names speculatively in bad faith, have given speculation in domain names a bad name. With the implementation of anti-cybersquatting legislation in a number of jurisdictions and along with the downturn in the dot com sector, this problem seems to have dissipated.

The domain name valuation sector within the DNRI is a commercial response to market demands for valuation of domain names. It embraces specialist businesses (many of which appeared during the dot com boom but no longer appear to be in existence), pundits and offshoots of registrars or entities in other DNRI sectors. It addresses a global market. Its practitioners appear to be largely disconnected from the valuers of intangibles in other industries. Many of its consumers appear to be unaware of academic or industry debate about standards and methodologies for the valuation of financial derivatives or other intangibles (for example the valuation of consumer brands and newspaper mastheads) that would serve as a frame of reference for valuing domain names.

The sector has not been publicly mapped and there is no substantial academic literature about its dimensions and evolution. It appears to be volatile, with substantial changes over the past five years and plentiful criticism of business practices in the industry<sup>84</sup>. Information about revenue,

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<sup>84</sup> Intervention by trade practices bodies has centred on competition policy (eg the VeriSign and MelbourneIT monopolies) and misleading claims by registrars/agents

personnel and mode of operation is uncertain. However, we can use some baseline conceptions to develop some ideas about valuations.

### **Methodical Valuation: Generic, Length, Industry Strength, Memorability**

There are no substantial offline works about criteria for valuing a domain name and the commercial acceptance of associated methodologies for valuing a large number of domain names. Most writing has featured as chapters within works on the valuation of intangibles.<sup>85</sup>

Web-based materials that value domain names, despite claims to the contrary, are unsophisticated and use poorly articulated methodologies.<sup>86</sup> The methodologies are not open to testing by third party sources and, as most of the valuers provide retail services (among other things) the independence of their claims cannot be tested<sup>87</sup>.

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(eg ACCC against ING in Australia, DTI and FTC against alternative root vendors in UK and US).

<sup>85</sup> For example, Smith and Parr's 2000 work on *Valuation of Intellectual Property & Intangible Assets*. Challenges in valuing dot coms are discussed by practitioners such as Anthony and Michael Perkins in *The Internet Bubble* (New York: Harper Collins 1999). There is a more theoretical treatment in Shiller's *Irrational Exuberance* and Schleifer's *Inefficient Markets: An Introduction to Behavioural Finance* (New York: Oxford University Press 2000).

<sup>86</sup> In addition, some of the websites that offer guidelines for valuing names or value domain names appear to contain advertorial information rather than statistical analysis of the value of domain names. Some examples of domain name valuations services include [www.domainguru.com](http://www.domainguru.com), [www.domainfellow.com/ezine/marketresearch/domainnamevaluation.asp](http://www.domainfellow.com/ezine/marketresearch/domainnamevaluation.asp), [www.tangy.com/about/namescience.cfm](http://www.tangy.com/about/namescience.cfm). The language used to characterise domain names has changed, reflecting movement from a subject that primarily concerned network engineers to one that now preoccupies other communities, in particular, trademark lawyers, and has featured in the mass media.

<sup>87</sup> There are no widely agreed benchmarks within or outside the sector. Participants in the sector are not certified by government and there is no formal industry accreditation, or even a sector association. Domain valuation does not feature on the curriculum of the twenty leading business schools, for example, Wharton, Columbia, Sloan, London or INSEAD) as of December 2002. Domain name valuation

For as long as domain name valuers also re-sell or speculate in names, the value of re-sold names and our understanding of the secondary market for domains names will remain uncertain. That uncertainty is exacerbated by suspicion about the accuracy and representativeness of some reported sales. There is no generally accepted global database covering secondary market activity.<sup>88</sup> Not all sales are conducted by registrars and resale specialists (such as Afternic and GreatDomains) that publish prices sought or received. Some sales occur on a private basis, in response to advertisements on a name by name basis.

Some journalists appear to have confused major prices sought for domain names with prices actually paid. There are recurrent suggestions that claimed million-dollar sales did not actually take place. And the handful of .com, .net and .org names resold for six figure sums are arguably not representative of most transactions or indeed of most domains.

There are some famous cases of domain names being sold for enormous prices<sup>89</sup> but, with the passing of stronger intellectual property protection laws in the US such as the

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has attracted little attention from writers in academic business literature, in contrast to research on methodologies for the valuation of dot-com enterprises.

<sup>88</sup> The absence of authoritative figures is rarely discussed but presumably discouraged consumer scepticism about claims such as "Domain name speculation is probably the very best way to make money on the Internet and probably one of the least known! It is also easy, takes a very low investment and has a huge profit potential. Businesses and webmasters are always looking for high-quality marketable domain names and will pay you big bucks if you have the name they want. Many people are making a good living buying and selling domain names. And you can too. ... no other investment has revealed as rewarding and profitable than Domain Names!" (<http://www.nichunt.com/why.php3> visited 18 December 2002)

<sup>89</sup> An indicative list can be found at [www.domainfellow.com/ezone/marketresearch/exhibit1.asp](http://www.domainfellow.com/ezone/marketresearch/exhibit1.asp). Most notable about this list is the date. The prices indicate the economic conditions and speculative frenzy surrounding domain names.

1999 *Anti-Cybersquatting Protection Act*, the intervention of WIPO in dispute resolution mechanisms and the downturn in economic conditions since April 2000, the speculative market seems to have dropped away.

The high prices achieved for some names may indicate other factors at work: such as, the impetus from the finance industry, the practice of defensive registrations and the advice of trademark lawyers. However, an unwilling buyer and unwilling seller set a price for any commodity.

The third, broader area of domain name value is that numbers and names together have created a commodity industry for domain name registrars and a range of enterprises concerned with valuation services. It is a predictable outcome of the introduction of competition but the price of domain names is now, compared to its early days, so cheap (around US\$6) that the profit margins for registrars have dropped considerably. At the same time, for end-users the affordability of domain names has increased.<sup>90</sup>

A wide variety of statistics are available about the market capitalisations (such as Register.com's Annual Report), market position statistics and general market analysis such as US Bancorp Piper Jaffray's report on consolidation in the domain name industry and NASDAQ stock prices on selected publicly listed companies, for example, Verisign, Register.com and TUCOWS. The market value of the industry has reflected the spikes and troughs of the information economy. Network Solutions was, for example,

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<sup>90</sup> Several million names haven't been renewed over the last few years which may indicate three things. Speculative registrations are not providing the returns they once did; defensive registrations are perceived as unnecessary and, more generally, economic conditions have had a dramatic impact on online businesses which need a domain name to operate. Further statistics about non-renewed names can be found at <http://www.sotd.info/sotd/Content/Documents/sotdQ302.pdf>.



acquired by Verisign for US\$21 billion in stock in late 1999. At the same time, Verisign's major competitor Register.com, was capitalised at around \$US200 million. The market capitalisation of both companies is, in 2003, considerably reduced<sup>91</sup>. A discussion about the value of names and the methods for determining domain name value is complex.

The common literature on valuing domain names is, in the context here, important only because the cost:price ratio of the DNRI business has put direct pressure on the DNS and the way in which the DNS is managed.

The broader marketing and branding literature is useful here and, at a superficial level, appears to relate to domain names. I examine this part of the equation by comparing the attractiveness and availability of .au names as compared to those in the gTLD space.

The value of an .au name resides in several areas, one of which is to identify uniquely Australian businesses. For example, RM Williams is an immediately recognisable Australian business and, even if RM Williams did own the rmwilliams.com equivalent, it is most likely that the company would (and does) use the rmwilliams.com.au name to ensure that one significant feature of their brand (that of Australianess) is signified through the domain name. In addition, one would expect that RM Williams would have defensively registered the rmwilliams.com and rmwilliams.com.au names to prevent anyone else from using them. However, I limit the discussion here to the value of .com and .net names as that group provides the largest

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<sup>91</sup> For example, Register.com and Verisign's annual reports found on their respective websites, market position statistics found at *State of the Domain* (<http://www.sotd.info>).

sample size, is the most commonly fought over in UDRP cases, and is the subject of the most comprehensive value analysis.

The length of a domain name is one consideration. The limited domain name valuation literature gives little information about the optimum length for a domain name. It has been argued that the shorter a domain name the more value it has but this has not been assessed in any robust way. We could draw parallels with telephone numbers and that beyond roughly ten numbers, most people have trouble remembering the number string.

Another assertion is that value inheres in the particular industry. The more identifiable an industry is, such as cars, flowers, insurance, the more valuable the name. The assertion is problematical because it appears to be based on perceptions of major areas of consumer spending (much popular writing about e-commerce is predicated on business-to-consumer activity being the 'only game in town') without any consideration of market structures, competition and external promotion<sup>92</sup>.

Memorability is another consideration which is tied closely to domain name length. A name that is memorable, either because it is a famous name or mark or a newly made word (like Accenture, Avilent) or a re-purposed name (like Monday), seems to have more value. Memorability also means that an end-user could make a reasonable guess about a domain name address rather than using a search engine.

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<sup>92</sup> Examples of e-commerce enthusiasm are Canter and Siegel's 1994 *How to Make a Fortune on the Information Superhighway* (arguably the beginning of the e-biz genre), Bloor's 2000 *The Electronic Bazaar*, Carpenter's 2000 *eBrands: Building an Internet Business at Breakneck Speed* and Cohan's 1999 *Net-Profit* and 2000 *e-Profit* and De Kare-Silver's 1998 *E-shock*. Hype about e-commerce is questioned in John Cassidy's 2003 *dot con: The Real Story of Why the Internet Bubble Burst*.

The importance and commercial value of names (whether they are priced as a wholesale or retail commodity) has transferred to the numbers beside them, in the database, a value and importance not previously associated with the DNS.

Management of the technical standards for interoperable networks has had commercial, policy driven value ascribed to it. In addition, competition rules now apply where previously monopoly service sufficed. Access to these resources is perceived to require more than market based control mechanisms or simple contractual arrangements.

The essential feature is that names are for people and IP numbers (or addresses) are for computers. This fundamental dichotomy is borne out in both the gTLD space and the ccTLD space.

Generic names, that is those that identify a particular sector such as 'cars', 'flowers', 'shop', 'mortgage', 'loans' were promoted by many pundits and vendors as having unique intrinsic value, sufficient to justify million dollar prices on the secondary market. The rationale appears to reflect what one critic characterised as the AOL's 'walled garden' model, an echo of Internet addressing prior to development of domain names and browsers.

That model assumed that the online population was unable or unwilling to independently identify resources (and would remain so) and thus required the network operator to search for them, providing them with a limited number of options. Enterprises would pay handsomely to be identified through the AOL keyword or obtain a generic domain name that would deliver them substantial traffic by default.

In practice the walled garden model hasn't been successful, partly because surfers have come to use a range

of navigation tools over the past five years (for example, hyperlinks from websites, URLs featured in broadcasts and print, citation-based search engines such as Google, word of mouth, recommendations by e-mail) and partly because early adopters of the web strongly influenced later generations to roam freely rather than stay passively within a digital reservation.

### **Conclusions: Network Numbers, Domain Names and New Value**

The research here has made the following conclusions. There is an intrinsic value in the DNS. It enables information and resources to be efficiently located and managed. The unique number to computer pairing is critical to the robust management of the Internet. Control of the management of those assets and the policies enabling their effective use are critical to understanding the policy and political importance of the shift from IP numbers to the widespread use of domain names.

I have demonstrated that the *value* of domain names is derived from a multitude of perspectives including the valuation of intellectual property assets and branding, navigational utility, critical commercial reliance by businesses, usability and functional communication.

The commercialisation of basic Internet architecture and network resources has given rise to the widespread use of domain names as Internet resource locators. The domain name registration industry has capitalized on the commercialization of domain names to sustain an industry in itself and to make Internet applications much more intuitive and affordable.

The drift from infrastructure value to name value has driven ICANN and other ccTLD regulators such as .auDA, CIRA and Nominet to devise equitable domain name registration policies. Whilst ICANN (like other country code administrators such as .auDA and CIRA) may be “a technical coordination body for the Internet [responsible] for a set of technical functions that coordinates the assignment of...identifiers that must be globally unique for the Internet to function: Internet domain names, IP address numbers and protocol parameter and port numbers. . .”<sup>93</sup>, it also determines, by its policies and procedures, the commercial success of Internet applications. Control and management of the numbering function is a technical matter that has caused little controversy. The numbering function and the allocation of number blocks is straightforward. Allocation of names is more complex and more contested.

The management of naming and all the variables associated with domain names rather than numbers has created and distributed value to the DNS. Understanding that new value and apportioning it fairly is the critical complication of ICANN’s work. This is borne out in the process for the allocation of new gTLDs, in changes to policies about the deletion and transfer of domain names, in the policies to protect the rights of intellectual property holders and in the more general market discussion about the use and utility of domain names.

Klensin argues, from a technical perspective, the results of globalisation are as follows. “Convenience of typing, and the desire to make domain names out of easily-remembered

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<sup>93</sup> From ICANN’s mission statement found at <http://www.icann.org>.

product names, has led to a flattening of the DNS, with many people now perceiving that second-level names under COM. . .are all that is meaningful (this perception has been reinforced by some domain name registrars who have been anxious to 'sell' additional names. And, of course, the perception that one needs a top-level domain per product, rather than a (usually organizational) collection of network resources has led to a rapid acceleration in the number of names being registered, a phenomenon that has clearly benefited registrars charging on a per-name basis. . .but has not obviously benefited the Internet as a whole" (Klensin 2000: 3).

Lessig argues that cyberspace is controlled by its architecture and the software code which runs it. I have found it to be more complicated than that. Even with all the argumentation about who controls what, the DNS itself is protected by underlying fear. Fear that the whole system will fall over and no one dares touch the goose which lays golden eggs.

Finally, Irlam, writing in 1997, argues that "the tremendous economic value of the Internet is a result of the global interconnection of documents, e-mail addresses, computers, and ultimately people. . . .The interconnection of people [and the creation of secondary markets] via e-mail is the result of the use of a global e-mail address space". He continues by observing that "great economic value is derived from the fact that a single authoritative DNS database exists, and that all host names are interpreted within this single context". (Irlam 1997: 4) . Irlam's views are borne out in developments since 1997. Control the name; control the commerce.

I turn now to an examination of the formation of ICANN and the creation of a new fulcrum of regulatory power.

## CHAPTER FOUR - ICANN AND THE SHIFTING FULCRUM OF REGULATORY POWER

*Given the exponential growth of the Internet, legal institutions face serious questions, not only about how to regulate the Internet, but also about whether it should be regulated at all<sup>94</sup>*

*A cycle that moves between phases of unbridled self-interest and collective self-restraint<sup>95</sup>*

### Introduction

This chapter provides a detailed description of ICANN, its constitution and operations. ICANN is specifically responsible for the technical coordination of the DNS. It is designed to be a globally representative body that makes policy and implements decisions about the ongoing stability and utility of the DNS<sup>96</sup>.

Structured as a global organisation with headquarters in Marina del Rey, California, ICANN is constituted as a non-profit corporation under Californian statute<sup>97</sup>. A small staff and a Board of Directors from each of ICANN's five geographic regions<sup>98</sup> run ICANN. The implications of an

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<sup>94</sup> Yee, Fen Lim (2002: 1)

<sup>95</sup> A statement, unrelated to ICANN, and made in the context of Abolafia's work on the creation of markets that could equally describe ICANN.

<sup>96</sup> The February 2001 Congressional Testimony by Mike Roberts (ICANN's first CEO) gives a good overview of many of the issues surrounding ICANN in its early phase. <http://www.icann.org/correspondence/roberts-testimony-14feb01.htm>.

<sup>97</sup> The original By-Laws and subsequent revisions are found at <http://www.icann.org/general/archive-bylaws/>.

<sup>98</sup> The commitment to geographic diversity is part of ICANN's by-laws found at <http://www.icann.org/yokohama/geo-topic.htm>. The geographic diversity



organisation government by California statute are many and varied. The first is a matter of perception. Great efforts were made to create mechanisms that reflected the global nature of the ICANN experiment and the shift away from US dominance of control of the Internet. Locating the offices in California was seen by some, more as a perception than perhaps fact, as a continuation of that control. The first staff members<sup>99</sup> of ICANN were all American. Again, this is a matter of perception. I doubt that there was ever a direct attempt to ensure that the staff were sourced more broadly. (This is changing as the organisation matures.) Perceptions of diversity, in an atmosphere of attempts to be more globally attuned, were not met. The more important issue is that of the impact of Californian statute. The US legal tradition has driven the constitution, by-laws, contracts and negotiating style of the organisation. None of this is necessarily negative, it just means that, in attempts to be more global, US legal tradition has driven the core of organisation.

Having said all that, the office needed to be located somewhere, the process started somehow and Marina del Rey is as good a location as any.

The chapter concentrates on the development of ICANN's mission, mandate and work focus between November 1998 and November 2001. The statistics found in the Appendices illustrate data about ICANN that has not been previously collected or analysed. The data supports the hypothesis that regulatory arrangements are now financed

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characteristic is to ensure that decisionmaking is distributed out of North America and reflects a broader Internet community. The geographic diversity rules are also designed to capture differing skills and expertise from a broad pool of experts.

<sup>99</sup> For example, CEO Mike Roberts, General Counsel Louis Touton, Vice President and CFO Andrew McLaughlin.

and enacted by the private sector. Participation rates and types of organisations represented are detailed in the charts.

The chapter also explains the formalisation of a culture of volunteerism or the 'delegation' process<sup>100</sup>. Postel's delegates were a group of experts, who took responsibility for particular portions of the Internet hierarchy, maintained zone files and, in many cases, assisted in the ongoing development of RFCs that improved the working of the DNS. The chapter is also about the development of formal regulatory responses to the peculiarities of the DNS that enables a global communications network to work.

ICANN has attracted comprehensive but often uneven and alarmist media coverage<sup>101</sup>; it has been criticised from within its own constituencies<sup>102</sup> and by a range of outsiders<sup>103</sup>. It seems, however, that the organisation has been accepted as the least intolerable alternative. Efforts for reform of its By-Laws, whilst outside the scope of the work, have been well received and are now being implemented. The distinction between ICANN's policy-making role as a triage point for competing interests and its administrative, secretariat-like role is often blurred and has been the cause of dissension.

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<sup>100</sup> I have referred previously to the delegates as Postel's Apostles.

<sup>101</sup> For example, by such diverse publications as the now defunct on-line journal Red Herring ([www.redherring.com](http://www.redherring.com)), the Washington Post ([www.washingtonpost.com](http://www.washingtonpost.com)) and the Australian Financial Review ([www.afr.com](http://www.afr.com)) in addition to ICANN "critic" sites such as ICANNWatch ([www.icannwatch.org](http://www.icannwatch.org)).

<sup>102</sup> The criticisms are comprehensively encapsulated in the Lynn Proposals for reform and subsequent reports by the Evolution and Reform Committee at <http://www.icann.org/general/lynn-reform-proposal-24feb02.htm>.

<sup>103</sup> For example, the ITU at <http://www.itu.int/ITU-T/tsb-director/itut-icann/reservations.html> and the Information Technology Association of America <http://www.ita.org/govt/cong/c19990722.htm>.

ICANN's responsibilities are specifically identified on its website and include the following:

*Specifically, ICANN coordinates the assignment of the following identifiers that must be globally **unique** for the Internet to function:*

- *Internet domain names*
- *IP address numbers*
- *Protocol parameter and port numbers*

*In addition, ICANN coordinates the stable operation of the Internet's root server system.*

*As a non-profit, private-sector corporation, ICANN is dedicated to preserving the **operational stability** of the Internet; to **promoting competition**; to achieving broad representation of **global Internet communities**; and to developing policy through private-sector, bottom-up, **consensus-based** means. ICANN welcomes the participation of any interested Internet user, business, or organization.<sup>104</sup>*

The words in bold are important. They are priorities which are, in many circumstances, contradictory. For example, operational stability and the introduction of new gTLDs creates tension as does the introduction of competition. The economic friction of competition can be seen most obviously in the number, type, location and service offerings of registrars and the tightly held market share of the largest registrars<sup>105</sup>. There are inherent tensions between a commitment to a global Internet community consultation process and the development of consensus-based policy. The global rules for managing a technical network are not the same as the creation of a global community or the rules for the engagement of that community. The size and nature of

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<sup>104</sup> <http://www.icann.org>, emphasis added.

<sup>105</sup> The list of ICANN accredited registrars is at <http://www.icann.org/registrars/accredited-list.html>.

the Internet community has not been defined. For example, it has always been unclear whether the community is anyone with an e-mail address, anyone registering as an At-Large member of ICANN or anyone with a domain name, or anyone who uses the Internet<sup>106</sup>. The development of consensus policy across vastly divergent cultural, linguistic, philosophical and commercial factors presents challenges for any organisation, not least ICANN.

Some of these contradictions are contained in the equations which have emerged from this research. These are stewardship and ownership; trusteeship and control; non-commercial and commercial use of Internet resources and international and national treatment of regulatory problems. ICANN operates under philosophies of stewardship, trusteeship and the international treatment of regulatory problems in an environment where commercial use of the Internet now far outweighs its non-commercial utility. The philosophies and the usage are, sometimes, diametrically opposed.

I turn now to a brief examination of the historical documents which led to the formulation of ICANN and which explains some the tensions within the equations.

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<sup>106</sup> The relatively new At-Large Advisory Committee says that the ALAC "is responsible for considering and providing advice on the activities of the Internet Corporation for Assigned Names and Numbers (ICANN), as they relate to the interests of **individual Internet users** (the "At-Large" community). ICANN, as a private sector, non-profit corporation with technical management responsibilities for the Internet's domain name and address system, will rely on the ALAC and its supporting infrastructure (At-Large groups all over the world) to involve and represent in ICANN a broad set of individual user interests". Emphasis added. Found at <http://alac.icann.org>.

## Foundation Documents<sup>107</sup>

The RFC series provides a comprehensive picture of how Internet protocols evolved and developed into a formalised regulatory system<sup>108</sup>. The RFC series is still active and is constantly changing. The RFCs show the technical backdrop from which ICANN has drawn its co-ordinating functions and from which it draws its mandate.

The policy documents that are the basis for the formulation of ICANN and its implementation are found in full in the Supplementary Material to this dissertation. The first is the US Government's *Framework for Global Electronic Commerce* which provides the policy context from which ICANN was derived. At the time, the Clinton Administration had followed from the Reagan and Thatcher administrations which emphasised, amongst many other things, small government and a commitment to more effective industry self-regulation.

The role of the US Government cannot be understated in the formation of ICANN. Indeed, ICANN continues to report to the Department of Commerce about its progress and its achievements. The general policy framework in which the establishment of ICANN took place is identified by Braithwaite and Drahos as the tension between national sovereignty and global rules. Their work can also be mapped onto the involvement of other governments (particularly those in the European Union) and agencies (such as the ITU). However,

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<sup>107</sup> Christine Borgman's 2000 book, *From Gutenberg to the Global Information Infrastructure: Access to Information in the Networked World*, places the development of the Internet in context. <http://www.zakon.org/robert/internet/timeline/> provides an interesting timeline of broader developments that have had an impact on the construction of the Internet.

<sup>108</sup> Found at <http://www.rfc-editor.org/rfc.html>.

the agenda for the formation of ICANN; its role and procedures; its constitution and governance and the main participants were clearly from the United States.

As this work is about the orderly development of globally applicable standards and norms for managing the critical technical infrastructure of the Internet, it is helpful to see the broader policy continuum in which the institution responsible for that development exists. The five principles stated in the *Framework*<sup>109</sup> refer to two critical points. The first is that the public sector would take the lead in determining regulatory outcomes for electronic commerce. Whilst the document does not specifically refer to the DNS, the overt theme of the Internet as a medium with minimal government regulation is clear. The *Framework* stresses the need for governments to understand the uniqueness of the Internet, as a global system and one that should be treated differently from other network industries. It also states that “. . .the Internet is emerging as a global marketplace” and argues for consistent legal principles at a global level. Section 9 on technical standards argues that “standards are critical to the long term commercial success of the Internet as they can allow products and services from different vendors to work together”. This statement formalised sentiments developed over many years through the RFC process.

The second foundation document is the US Department of Commerce’s 2 July 1997 *Request for Comment on DNS Administration*<sup>110</sup>. The document reflects a policy

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<sup>109</sup> The document does not have page numbers. For reference purposes, I have referred to the closest section number.

<sup>110</sup> Found at Part B, Supplementary Material.

environment in which the *Global Information Infrastructure* policy was being pushed from the United States to other countries (taken up in NII policy frameworks) and which demonstrated a commitment to minimal governmental intervention in electronic commerce. The document expresses concern that “. . .the enormous growth and commercialization of the Internet has raised numerous questions about current domain name registration systems” and recognises that the arrangements between Network Solutions and the National Science Foundation were due to expire in 1998<sup>111</sup>.

Whilst it was recognised that the Internet had been derived from research priorities, there was support for “private sector leadership for the Internet and a [belief] that the transition to private sector control should continue”. This thinking aligned with the *Framework* document, the GII and the NII. This trend towards smaller government and greater private sector initiatives for industry self-regulation was also occurring in the concurrent deregulation of the telecommunications sectors.

The 1997 *Request for Comment* document posed many questions and sought suggestions as to how best to proceed. Most notably, and reflected in the development and early structure of ICANN, the document focused on principles, organisational issues, expansion of the gTLD space and registry policy.

On 20 February 1998, as a result of feedback and commentary on the *Request for Comment, A Proposal to Improve the Technical Management of Internet Names and*

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<sup>111</sup> The document does not have page numbers. This discussion is found in the Background section.

*Addresses* was released. This document took into account substantial public comment, from governments, corporations and the broader Internet community.

The momentum towards the development of a new system illustrates a fundamental and irrevocable shift away from centralised government regulation to private sector-driven regulation which is the third part of the hypothesis being tested here.

That momentum, both in a US domestic political context and more broadly in international forums, coalesced around a series of principles which included stability, competition, private bottom-up coordination and representation. These four principles are manifest in ICANN's mission statement.

Movement from policy principles to the formulation of a structure for the organisation took place through a US Government policy statement. The 5 June 1998 *Management of Internet Names and Addresses* (or White Paper) reflected the views of the US Government and the broader international community. It solidified the move towards private sector regulation of the technical resources of the Internet.

The White Paper provides the historical background, policy context, political and commercial environment and operational framework for the construction of ICANN as an organisation.

The Paper also reflects the involvement of other international organisations such as the Internet Society (ISOC), ITU and WIPO that had earlier participated in the International Ad Hoc Committee (IAHC). The IAHC had been vitiated by claims it was dominated by business or non-US interests and thus had failed to produce a workable solution



to the representativeness required for a global regulatory organisation.

The White Paper identified the four coordinating technical functions that would be ICANN's responsibility<sup>112</sup>. These were setting policy for and directing the allocation of IP number blocks; to oversee the operation of the Internet root server system; to oversee policy for determining the circumstances under which new top level domains would be added to the root server and to coordinate the assignment of other Internet technical parameters to maintain universal connectivity on the Internet.

Aside from the articulation of policy and the identification of key technical functions, the White Paper sets out the operational priorities of the new corporation. These should be "fair, open and pro-competitive, protecting against capture by a narrow group of stakeholders. . . Finally, the commercial importance of the Internet necessitates that the operation of the DNS system, and the operation of the authoritative root server system should be secure, stable, and robust"<sup>113</sup>.

The November 1998 *Memorandum of Understanding Between the US Department of Commerce and the Internet Corporation for Assigned Names and Number* (MoU) demonstrates the intention to make the transition proposed in the previous papers. As the final foundation document, the MOU indicates that, despite the commitment to private sector management of the DNS, there would be a test-bed phase prior to formally handing arrangements to the private sector.

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<sup>112</sup> Found at the end of Section Two.

<sup>113</sup> This section is found just prior to the discussion on Transition.

The reluctance to immediately shift to the new system was evident in the DoC's need for "assurances that the private sector has the capability and resources to assume the important responsibilities related to the technical management of the DNS". This meant, in practice, whether there would be a consistent supply of funding to enable ICANN to do its work. These significant budgetary constraints are discussed in more detail below because they form the core of why ICANN has struggled to implement its mission. The early budget estimates of \$750,000 - \$1 million were provided by loans and assistance in kind from a variety of sources<sup>114</sup>.

To revise quickly, the discussion in Chapter Two pointed to a clear set of historical regulations of the DNS. It became obvious that the responsibility for the DNS had rapidly become too much for the legion of volunteers, most notably Dr Postel, to manage effectively<sup>115</sup>. It was clear that those who had taken the lead in managing the technicalities of the DNS, the IETF within the ISOC structure, were under some pressure to broaden the base of constituents with some say about the nature of DNS management.

At the same time, "...Like the Internet itself, the IETF has no official governmental charter or formal membership requirements. Rather it comprises a series of working groups formed to deal with specific technical problems and to come up with implementable solutions to them". (Baer 1997: 542) This situation became untenable and, in addition to internal

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<sup>114</sup> These donors are identified in the Glossary. The budget for 2002 shows that expenditures and revenues have grown markedly (<http://www.icann.org/financials/budget-fy02-03-28jun02.htm>)

<sup>115</sup> In the Australian context, this is discussed fully in Chapter Seven.

US Government policy directions, there were growing external pressures from other governments to share the management of a set of global resources, as policy about the Internet moved to the fore in some key administrations. For example, Australia established the National Office for the Information Economy (NOIE) which focuses specifically on electronic commerce, the Internet and encouraging, amongst other things, the adoption of on-line applications<sup>116</sup>.

The US Government was under some pressure to spread the regulatory responsibility (and commercial advantage) around to other parts of the world. The documents listed in the Supplementary Materials provide a clear outline of the policy context, the US Government response and the resultant early structure of ICANN. Baer discusses, in a comprehensive table, the international organisations which have responsibility for technical coordination (Baer 1997: 544). They include the ITU and the ISO but he notes that “the bureaucratic structures and formal processes of these agencies [and others like the OECD, WIPO, World Bank and WTO] hamper their ability to keep up with rapidly changing technologies and markets” (Baer 1995: 544). It is moot whether ICANN’s processes are more efficient or yield better results but the clear intention has been to shift regulatory responsibility to the private sector. That much has been achieved.

Lance argued that “Over the last few years much attention has focused on the DNS, as its functionality, so essential to Internet integrity, seems to have shifted from engineering utility to controversial cash cow. . .” (Lance

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<sup>116</sup> The NOIE website provides an indexed list of their project priorities.  
<http://www.noie.gov.au/projects/index.htm>.

1998: 1). The four foundation documents discussed here are evidence of responses to the commercial criticality of the Internet as a communications system, identified in the early 1990s and evidenced in the dot com boom during the late 1990s and early stages of 2000.

The foundation documents also explain why “. . .the commercialization and globalization of the Internet...initiated a debate of privatising and distributing internationally the responsibility for coordinating name and address assignment. It also initiated intense economic conflicts about the principles governing the assignment of domain names” (Mueller 2000b: 5).

ICANN’s structure is governed by a set of By-Laws which guide the everyday running of the organisation and its ability and authority to make decisions<sup>117</sup>. The By-Laws enshrine a commitment to open and transparent procedures; set the structure of supporting organisations; the establishment of special committees; determine who can be Board Directors, where they should be from, how much they should be paid (and specifically exclude government representatives from being on the Board) and the nature of ICANN staff.

Whilst ICANN was tasked with technical management functions, those functions have, very often, policy and political implications. Mueller argues that “...commercialization transformed the nature of domain names as much as the business of registering them. Domain names before had been nothing more than user-friendly addresses. In a commercial marketplace, however, they

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<sup>117</sup> The By-Laws have undergone substantial revision since early late 1998. The full list can be found at <http://www.icann.org/general/archive-bylaws/>.

came to be seen as marketing tools and brand names, the catchier and more advertisable the better” (Mueller 2000b: 9). This has meant that ICANN does not just make technical decisions. It determines the fate of many commercial enterprises and is a critical driving force in the economics and potential of electronic commerce. This commercialisation is the motivation for the corporate strategy discussed in Chapter Six. I turn now to a discussion of the key actors which, on the basis of the foundation documents, enabled ICANN to operate.

## **People & the Constituencies**

The culture of volunteerism in Internet governance is traceable from the late 1960s. The committed group of volunteers came from a small pool of academics and research professionals<sup>118</sup>. Jon Postel<sup>119</sup> typified the personalities that have dominated the development of the Internet. In the Australian context, Robert Elz was another of the core group of technical experts given responsibility for portions of the Internet hierarchy. Elz’ role is discussed in detail in Chapter Seven on Internet governance in Australia.

One of the most interesting features of ICANN is the wide diversity of individual actors<sup>120</sup> who have dominated the

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<sup>118</sup> The summary at <http://www.isoc.org/internet/history/brief.shtml> gives an overview of some of the earliest individuals responsible for developing portions of protocol which, when taken together, form the Internet system.

<sup>119</sup> Comprehensive information can be found through the ICANN website at <http://www.postel.org/jonpostel.html>.

<sup>120</sup> The average number of ICANN meeting attendees is approximately 611, based on the figures in Appendix Two. This is a very small number of people compared to the numbers of Internet hosts or e-mail addresses or domain names registered. For example, according to the OECD’s *Measuring the Internet Economy 2002* “between July 1999 and January 2002, the number of secure servers in OECD countries increased by 223%” (p60).

constituencies. The statistics show that, in the main, business representatives dominate the meetings. However, ICANN is very much a collection of businesses, technical experts, academics and individuals with an interest in Internet governance. During the life of the research, it was found that the structure and processes under formulation were dominated by a small group of personalities<sup>121</sup> and organisations<sup>122</sup>.

The early implementation of the ICANN structure depended, not least because of budgetary restrictions, on a wide range of people volunteering their time, not unlike the earlier Postel days. The critical difference is that the volunteers were no longer members of academic and research institutions but those with a commercial interest in managing the DNS and its potential. In Chapter Five, I discuss some of the motivations of government actors and in Chapter Six I discuss corporate strategy. For the purposes here though, I have identified some key motivations and the costs associated with that volunteering.

The first is that people were very enthusiastic about a new regulatory experiment, even though they may not have perceived the experimental nature of the formation of a hybridised regulatory body at the early meetings. The challenge of building a global, consensus-driven organisation

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<sup>121</sup> Identifying a broader range of key actors is part of ongoing research. However, there are some notable individuals who stand out across the constituencies. For example, AT&T's Marilyn Cade in the Business Constituency; New Zealand's Peter Dengate-Thrush and the UK's Dr Willie Black in the ccTLD Constituency; Steve Metalitz in the Intellectual Property Constituency; Elliot Noss from TUCOWS and Michael Palage from the Registrars' Constituency. In addition, Wilmer Cutler & Network Solutions Attorney David Johnson and other activists on specific issues such as Milton Mueller, Kathy Kleiman, YJ Park and Eung Hwi Chun should also be included.

<sup>122</sup> Appendix Two lists the companies and institutions.

has attracted many divergent views and generated a great amount of conflict. The formation and implementation of ICANN in such a contentious environment is an extraordinary achievement<sup>123</sup>. Outstanding individuals believed it was possible to achieve compliance through a combination of irrational exuberance<sup>124</sup>, voluntary contracts and, perhaps, moral suasion and commitment to an unspecified Internet ideology.

A July 1999 ICANN staff paper stated that "It [ICANN] has no power to force any individual or entity to do anything; its "authority" is nothing more than the reflection of the willingness of the members of the Internet community to use ICANN as a consensus development vehicle"<sup>125</sup>.

Secondly, there is a core of people who believe that the Internet should, somehow, be free. The civil society advocates volunteer their time to achieve goals that range from free speech and privacy protection to more diffuse objectives such as the creation of a global Internet

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<sup>123</sup> ICANN has only marginal enforcement and compliance mechanisms at its disposal. Whilst registrars are accredited by ICANN, ICANN's power to do anything significant about registrar misconduct, such as misleading and deceptive conduct, false advertising or customer poaching is limited. The ICANN website specifically refers complaints individuals may have about registrar behaviour back to the registrar or to other agencies responsible for consumer complaints. See <http://reports.internic.net/cgi/registrars/problem-report.cgi>.

Registry operators, like registrars, are accredited and managed by contract rather than rules or regulations such as those that govern telecommunications companies (such as specific licensing conditions). In both cases, it is unclear what significantly persuasive penalties are available to ICANN to enforce contractual compliance, in the face of consistent breaches of contract.

<sup>124</sup> The title of Robert Shiller's book and, prior to that, US Federal Reserve Bank Chairman Alan Greenspan's questioning about the rise of the stock market during 1997 and 1998.

<sup>125</sup> The paper's author, Andrew McLaughlin, is another key individual in the formation of ICANN. <http://www.icann.org/general/background.htm>.

community<sup>126</sup> or the restructuring of global markets. The energy from that quarter has forced ongoing discussion of and commitment to openness and transparency.

Thirdly, other individuals are motivated by the priorities of the corporations that pay them to attend ICANN meetings. These individuals are found, most often, in Domain Name Supporting Organization meetings and their work is illustrated in detail in Chapter Six on corporate strategy.

Finally, government representatives (identified in Appendix Three) have been involved in ICANN for a wide variety of reasons, not least to keep a watching brief on what other governments do.

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<sup>126</sup> The latter point has driven the formation of the At Large Constituency and attempts to develop a mandate for globally representative election of Board Directors. Much of the historic ALAC material has been removed from the ICANN website although the Membership Study Committee gives a flavour of the debate. Found at <http://atlargestudy.org/>.



## ICANN's Organization Chart

This chart is not available online.  
Please consult the hardcopy thesis  
available from the QUT Library

The original organisation chart forms the basis for streaming bottom-up consensus based policy<sup>127</sup>. The Address Supporting and Protocol Supporting Organizations are the ICANN manifestations of the original technical community organised around the development of technical standards and protocols, most notably the RFC process.

The data found in the Appendices indicates that most participants fall into the DNSO grouping. The GAC is, notably,

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<sup>127</sup> This version of the chart was found in a 13 November 2000 orientation session on ICANN for the Marina del Rey meeting. <http://www.icann.org/presentations/mdr-orientation-ajm.ppt>.

not directly connected to the policy formulation process. This is discussed in detail in Chapter Five.

There has been much disagreement about the constituency structure<sup>128</sup>, its representativeness and its effectiveness. It is, in hindsight, a first attempt to develop an idiosyncratic regulatory structure that seeks to include everyone; to take account of enormously diverse opinions and also make decisions that are implementable within reasonable time frames.

This chart reflects the initial interpretation of the MoU which is now undergoing considerable review as the Evolution and Reform Committee's work takes effect<sup>129</sup>.

### **Process within Constituencies**

The July 1999 ICANN staff paper stated ". . .ICANN was created and has developed under the full scrutiny of the public eye. The agendas, results, and minutes of the Initial Board's deliberations are widely publicized, and posted in advance. The Board holds a quarterly public meeting where everything on the agenda is subject to full and open public discussion. In order to reduce costs for participants, ICANN broadcasts its public meetings live over the Internet, allowing remote participants to watch and send comments and questions by e-mail to the meeting room. The text of all resolutions adopted by the Board is immediately released, and the Board holds a public press conference. All decisions of

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<sup>128</sup> For example, commentary such as this to ICANN's External Counsel Joe Sims about the formation of a constituency for individual, rather than commercial, interests. <http://www.icann.org/comments-mail/01apr99-30apr99/msg00098.html>.

<sup>129</sup> For example, a current organisation chart is not available through the ICANN website.

substance are preceded by prior notice and a full opportunity for public comment<sup>130</sup>.

There are several additional points to make. The Board Meetings take place at the regular physical meetings, for example, the meetings held between November 1998 and November 2001. Even though the meetings themselves are open to the public, the public is not allowed to intervene whilst those meetings are taking place. There are also inter-sessional telephone conference meetings which are private and meetings held during the physical meetings which are closed to the public. In essence, public input into ICANN decisions takes place during the Open Forum time slots which have limited time allocated to them in the agenda<sup>131</sup>.

The commitment to open processes are a result of the four foundation documents discussed above and also, perhaps, designed to ensure no advantage is conferred without all parties knowing about it. The downside of this laudable commitment is that decision making is slow.

I will discuss as a case study the expansion of the domain name space through the introduction of seven new gTLDs<sup>132</sup>.

## **New gTLDs – Nouvelle Decision Making**

During the course of the research, the ICANN Board made many decisions which are set out in the official Board

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<sup>130</sup> Found at <http://www.icann.org/general/background.htm>.

<sup>131</sup> For example, the Melbourne meeting's Open Forum discussion list can be found at <http://www.icann.org/melbourne/> and includes discussion of the alteration of Verisign's contracts, the new gTLDs and the Budget.

<sup>132</sup> An overview of the introduction of new gTLDs, from ICANN's perspective, is found at <http://www.icann.org/tlds/>.

minutes<sup>133</sup>. Between November 1998 and November 2001, the most critical decisions related to the procedures for choosing the new gTLDs and subsequently, the decision on the successful applicants. The minutes of the March 2001 meeting shows which of the applications were chosen<sup>134</sup>.

The importance given to the expansion of the top level domain name space is evident through the Green Paper<sup>135</sup>, the White Paper (in Section 7) and in the MOU (in Section C, Part 9). It was clear, for example, in Department of Commerce testimony to Congress that the growing size and scope of Internet related businesses depended, in part, on the expansion of the domain name space<sup>136</sup>. The expansion of the domain name space was expected to achieve the following goals:

- increased competition in the provision of registry services and in registrar services
- expansion of the range and kind of names available for registration
- mitigation of some of the effects of a perceived name shortage (and the impact of cybersquatters and speculative name registrations)
- demonstration of ICANN's capacity to make and implement policy

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<sup>133</sup> The Board minutes are available at <http://www.icann.org/minutes>.

<sup>134</sup> <http://www.icann.org/tlds>.

<sup>135</sup> The discussion centres around the orderly introduction of new gTLDs, referring back to the principles of stability also to the introduction of competition.

<sup>136</sup> <http://www.ntia.doc.gov/ntiahome/congress/2002/icann6122002.htm>

An objective set of criteria was established by ICANN staff to enable the ICANN Board to decide which, of the more than forty applications, would be selected<sup>137</sup>.

The comprehensive criteria were set in August 2000<sup>138</sup> and took account of Internet stability and security; the proof-of-concept capacity of the initial round of new gTLDs being a model for future additions to the DNS; enhancement of competition; enhancement of the usefulness of the DNS; the creation of diversity in the types of names within the DNS; protection of intellectual property and a demonstration that applicants could adequately fill in the application forms.

Judging by the number and kind of applications put forward and the resources used to present those applications, it was clear that the Board's decision had commercial implications. Only seven were chosen and included .biz, .info, .pro, .name, .museum, .coop and .aero. There was a great deal of dissatisfaction expressed about the application process; about the kind of gTLD chosen (for example, there was significant pressure to choose .kids as a way of satisfying a push towards a 'safe' Internet for parents and children) and about perceptions of bias and influence, even though Board members with an interest in any of the applicants recused themselves<sup>139</sup>.

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<sup>137</sup> The DNSO was instrumental in setting the stage for between six and ten new gTLDs. The full list of applicants is found at <http://www.icann.org/tlds/tld-applications-lodged-02oct00.htm>.

<sup>138</sup> Found in full at <http://www.icann.org/tlds/tld-criteria-15aug00.htm>.

<sup>139</sup> Anecdotally, the public process for choosing the pre-cleared applications was an example of extraordinary decision making. Sitting at the back of the room whilst the presentations from the applicants were made and then listening to the Board discuss what should be in or out was, at best arbitrary and, at worst, open to procedural challenge.

Once the new gTLDs were chosen, the long and difficult implementation process began, hampered by a small staff and the highly complex contractual arrangements. Given that ICANN can only regulate formally by contract, this was a critical phase to enable an orderly start to the operation of new registries and, in turn, registrars to have new names to register. This shift, from regulation by statute law or multi-lateral treaty to regulation by contract is critical to the thesis. National jurisdiction, with its raft of statutes and laws, is shown to be supplanted by entirely different arrangements that manage business conduct anywhere in the world through an accreditation process and not via recourse of legislation<sup>140</sup>.

During this introduction of increased competition, dramatic price reductions for domain names; a significant economic downturn and a complete 'revaluation' of the dot com sector occurred. There was also significant consolidation within the domain name registrar industry<sup>141</sup>.

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A better alternative may have been the Australian model which, when calling for tenders for both registry (<http://www.ada.org.au/about/news/2001102201.html>) and registrar ([http://www.ada.org.au/docs/Registrar\\_Accreditation\\_Appform.pdf](http://www.ada.org.au/docs/Registrar_Accreditation_Appform.pdf)) services. The process was done much more smoothly, at least in public; with far less politics; with technically robust solutions and with most of political heat taken out of what became an administrative process to determine compliance with a defined set of technical, financial, marketing and operational criteria. There were heated Board discussions about the nature of the tender process and the decision making but, publicly, the process was open and transparent.

<sup>140</sup> Further discussion is needed, in the context of global regulatory frameworks, about the impact of the reversion of US contract law. Is this what we really mean by globalised regulatory frameworks; are we in the process of transition to frameworks that are manifestly global which manage technical resources with a global footprint?

<sup>141</sup> The May 2002 UN Bancorp Piper Jaffray *Consolidation in the Domain Name Registration Industry* report confirms this trend and illustrates the underlying reasons for significant change in the domain name registration industry, for example, a declining zone file for .com, .net and .org names and significant decreases domain name pricing.

According to data provided by State of the Domain for 2002<sup>142</sup>, .biz had 768,857 names, .info had 951,018 names and .name had 85,633 names<sup>143</sup>. Many of these names are not in active use but have, instead been purchased and parked as a defensive registration strategy to protect trademark owners from having to defend their rights to a name in a new gTLDs. For all the fanfare about the expansion of the domain name space, the uptake of new names has been slow. The millions of dollars spent by some registries promoting their application to ICANN and their product to registrars would have been a cause of concern investors and shareholders.

## **Hypothesis and Concept Set**

Turning once again to the hypothesis and the concept set that guides the work, it is clear, through an analysis of the foundation documents that have enabled the establishment of ICANN as an institution that the first and second parts of my hypothesis have been tested and proven. They are:

*That the regulation of disputes in this electronic marketplace is moving towards arrangements financed and enacted by the private sector and that, in return for the financing of that regulation, the private sector require a commitment from government to more flexible regulatory responses; and*

*That the regulatory treatment of the DNS illustrates a fundamental and irrevocable shift away from centralised government regulation to private sector driven regulation*

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<sup>142</sup> The full report, with breakdowns of registrar market share across successive quarters, is at <https://www.sotd.info/sotd/content/documents/SOTDQ302.pdf>.

<sup>143</sup> Ben Edelman's work, whilst outside the scope of the research here, is useful for a more extensive inquiry about the expansion of the domain name space and the barriers for doing that effectively. <http://cyber.law.harvard.edu/tlds/>

The concept sets show a definite trend towards the ownership, control and commercial use of Internet resources at an international level. This trend runs counter to the historic treatment of the Internet's technical resources on the basis of stewardship (of protocols and policies); trusteeship (of management and control) and a focus on non-commercial use of Internet resources available to everyone at limited cost.

### **Organisational Strength**

It is useful to align ICANN's structure, processes and procedures against an objective set of criteria for measuring organisational strength. Baer developed a set of key questions to test an organisation's effectiveness which are: "...(1) clear objectives and authority; (2) the support of major stakeholders; (3) timely decision-making processes; (4) an expert and results-oriented staff; (5) real enforcement powers; and (6) adequate financial resources." (Baer 1997: 548). I step through each of these key questions and test ICANN against them.

Firstly, clear objectives and authority. It is evident from the foundation documents, from ICANN's By-Laws and from its mission statement that it has clear objectives with respect to its technical coordinating function. That clarity reduces when applying those objectives in a context of technical regulation with highly political, commercially sensitive and competing objectives.

Whether ICANN has the authority to achieve its objectives, without formal binding powers, without effective compliance mechanisms and without an adequate budget, remains moot. Relying on contracts, executed under Californian statute, and on an accreditation system for



registrars and registries is, I believe, flimsy ground upon which to operate. Having said that though, ICANN has achieved its objective of introducing competition and expanding the domain name space whilst maintaining technical stability. The core of ICANN's strength is its control of the authoritative root server. The economic value of a domain name depends intrinsically on a user 'getting to it' and if Mueller's<sup>144</sup> contention is correct, that ". . . domain names derived their value as a globally visible locator from the existence of a coordinated, authoritative root that kept track of where all names could be resolved and ensured that every name in use was unique", then ICANN's control of the root is fundamental to its ongoing success.

Turning now to support from the majority of stakeholders. Over the course of the research, there has been some discussion of supplanting ICANN, of starting from the beginning again or, for example, putting the ITU in charge. A number of factors have ensured none of the possibilities emerged. Firstly, cosmocrats like ICANN. They may be frustrated by it or may not get precisely what they want when they want it but the attractions of the cosmocracy are many. The stakeholders are, in general, technically articulate, well educated, commercially sharp and well supported by their institutions (as is illustrated in the data in Appendix Two). The cosmocracy caravan, holding meetings in interesting places around the world, with people who generally do well at the job at hand and who are committed to the private sector management of the DNS, is loathe to make too many changes.

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<sup>144</sup> (Mueller 2000b: 10)

Secondly, there are no fundamental impediments to anyone who is genuinely interested in participating. There are obvious barriers such as the cost of the meetings (about \$US10,000 per meeting per person) but that cost can be mitigated by on-line and web-cast participation.

Thirdly, ICANN has genuinely attempted to engage with and respect the views of a wide range of participants. This is evidenced in the open forums; in the e-mail discussion lists and in the wide variety of attendees. The data on remote participation is difficult to verify but, in these early days, every attempt to broaden the consultative process is a good step.

Lastly, the engagement and commitment of key stakeholders is evidenced by the consistent participation of a broad group of both business and government representatives. The statistics in Appendix Two bear this view out.

Baer identifies timely decision-making processes as a measure of organisational strength. From a subjective view, some issues took far too long for decisions to be made and implemented. For example, as at the end of 2002, the new .pro gTLD was still not active. How much this is the fault of processes or a symptom of too little resourcing and staff is hard to divine. A number of other issues such as the formalisation of policies for the transfer and deletion of domain names took more than twelve months to decide. How much that was the fault of the institution as opposed to the contrary nature of opposing registrars is, again, hard to call.

An "expert and results-oriented staff" is something with which ICANN has had to wrestle. There is no doubt that the

ICANN staff has been under an enormous load<sup>145</sup>. There is little doubt that the staff were, during the time of the research, expert lawyers, engineers, marketers and finance specialists. However, there is little to be done when there aren't enough staff to do the work and there is, conversely, a deliberate policy to have a small, lean administration to control mandate and mission creep. It is in this area that the culture of volunteerism is most evident. Key stakeholders rather than ICANN staff drafted policy, produced documents, drove the agenda, set up consultations and delivered on much of ICANN's policy work. It remains to be seen what will happen in ICANN 2.0 with a larger budget and more extensive headcount.

Does ICANN have real enforcement powers? I think not, in terms of jurisdiction, traditional regulation or multi-lateral treaty arrangements. It does, however, have accreditation systems for registrars and registries; a developing system of contracts for ccTLD registries and contracts for its registry service providers. It also has intangible commitment to the process of Internet governance from key stakeholders (again, identified in the participation statistics). It also has, from many people, a philosophical commitment to enabling the Internet through sensible management with clear, objective rules. The management of the DNS is central to ICANN's mandate. There appears to be, despite all the criticisms, a clear commitment to ensure that the network is protected, in its broadest sense, because, if that fails, much else will fail as well.

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<sup>145</sup> This is identified in early budget papers; in the 2002 ICANN paper on proposed reform; and in the Evolution and Reform Committee's work. The staff numbers have ranged, in the very early days from three or four, to around fifteen. By any standards for a membership organisation, this is small.

Adequate financial resources have been a constant source of difficulty for ICANN. The threat of withholding operational funds and commitments (particularly in the ccTLD constituency) has been used as a fairly crude, but effective, leverage for change, for example, in Board representation. A determination of what is adequate funding remains moot. Few want to see an overblown, global bureaucracy from ICANN nor the development of a new bureaucracy for the 'government of the Internet'. On the other hand, a certain amount of funding is critical to ICANN's success. Between November 1998 and November 2001, there was not enough money to adequately staff the office. That lack enabled stakeholder volunteers to fill the void; control the agenda and determine key policy outcomes. Those stakeholders were various and are represented in the participation charts. Precise identification and mapping of individuals and corporate actors will be undertaken in future research.

## **Conclusions**

The formation of ICANN and the implementation of its processes, procedures and decisions are evidence of globally sourced governance by the private sector of the DNS.

The overview of ICANN's operations provided here sets in context the analysis in the following two chapters on governments and regulatory relevance and on corporate strategy in modelling regulatory structures.

ICANN's mandate and mission are clear; its core work is set and its main work on the introduction of new gTLDs covers the period of the research between November 1998 and November 2001.

The allocation of new gTLDs demonstrates the "political" necessity to show that it could meet the commercial demand

for expanding the domain name space at the same time as processes and procedures for making those decisions were in train.

Control of the root server is of utmost importance as it is on this that electronic business depends. Where and with whom that control resides is crucial and, during the research period, ICANN had that control.

## CHAPTER FIVE - THE SCRAMBLE FOR REGULATORY RELEVANCE: DOMAIN NAME SYSTEM GOVERNANCE AND THE NEW ROLE FOR GOVERNMENTS<sup>146</sup>

*A new network governance paradigm must emerge to recognize the complexity of regulatory power centers, utilize new policy instruments such as technical standardization to achieve regulatory objectives, accord status to networks as semi-sovereign entities and shift the role of the state toward the creation of an incentive structure for network self-regulation<sup>147</sup>*

### Introduction

This chapter sets out some early observations on the new role for governments in managing the critical infrastructure of the Internet DNS. It discusses the tensions between national politics and the involvement of governments in the development of ICANN<sup>148</sup>.

The structure of ICANN and the constitution of its GAC constrains national governments to a limited advisory role<sup>149</sup>. Efforts to bring the management of the DNS into the orbit of

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<sup>146</sup> This chapter is to be submitted to *Governance: An International Journal of Policy and Administration* [http://ppm.ohio-state.edu/PPM/about\\_the\\_school/governance1.html](http://ppm.ohio-state.edu/PPM/about_the_school/governance1.html)

<sup>147</sup> Reidenberg 1997: 100.

<sup>148</sup> Full information about the mission and mandate of ICANN can be found at <http://www.icann.org>. For the purposes of this chapter, the most relevant section of the website is that which relates to the Governmental Advisory Committee (GAC). Most notable is the section at <http://www.icann.org/committees/gac/gac-cctldprinciples-23feb00.htm#3.9> which refers to the country code management principles.

<sup>149</sup> The early paragraphs of the GAC principles bear this out. See for example, <http://www.icann.org/committees/gac/operating-principles-25may99.htm>. However, this may change if the recommendations of the Evolution and Reform Committee are implemented. This chapter is an historical examination to late 2002.

already established multilateral government entities such as the ITU and the United Nations have been spasmodic and, thus far, unsuccessful<sup>150</sup>.

This chapter focuses on the development and construction of mechanisms for governments to participate in a global private sector industry self-regulatory body. I address here the broad constitution of ICANN and the general consensus that governments don't or shouldn't or can't have a substantive role in Internet governance in a global, multi-jurisdictional environment.

National governments around the world have been actively reconsidering their role in the domestic governance of their portion of Internet architecture. Two distinct camps have emerged. In the first, those where the management of two letter country codes or ccTLDs<sup>151</sup> has remained firmly in the hands of government agencies. In the second, those where that management has been outsourced to self-regulatory organisations. The research compares and contrasts these two governance styles and some of the outcomes of each as it relates to the relevance of governments at an international level. There are shades of grey in both models. Some ccTLD managers are located firmly in a government ministry whilst others are in more independent but affiliated government agencies or academic institutions. In some examples of the

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<sup>150</sup>Recent correspondence with ICANN from the ITU can be found at <http://www.itu.int/ITU-T/tsb-director/itut-icann/index.html>. A cynical reader would assume that the ITU was, rather than being helpful, looking for ways to undermine a nascent organisation in its process of self-reform and reflection.

<sup>151</sup> Country codes are a two letter symbol, adopted from the ISO, that identify geographic areas (some of which are countries, others of which are territories). A full list of these codes is found at <http://www.iana.org/cctld/cctld-whois.htm>. A full description of the responsibilities of ccTLD delegates is at <http://www.icann.org/committees/gac/gac-cctldprinciples-23feb00.htm#3.9>.

second model, such as Canada and Australia, the ccTLD manager is located in a self-regulatory setting, endorsed by government but operating independently. At the other end of spectrum, the function is completely commercial with no government involvement of any kind, for example in Niue (.nu) or Tuvalu (.tv).

## **Background**

This chapter discusses the shift to private sector governance, as opposed to governance by governments, of the critical infrastructure on which the global Internet functions. It illustrates the changing interplay between governments and the private sector; examines the influence of governments on the development of ICANN as a hybrid regulatory authority tasked with responsibility for the technical management of the Internet; and makes some conclusions about the relevance of governments in the regulation of Internet architecture.

There are two key findings for the research.

The first is that national governments have been, in the context of ICANN and the technical management of global Internet architecture, consigned to an advisory role with little impact on the decisionmaking processes of ICANN.

The second is that, in a domestic context, national governments have retained the right to and, in most cases, actively manage their country code.

It is an important discussion because, as Taggart neatly states, "regulatory arbitrage. . . involves exploiting differing rules in different jurisdictions – for a profit. . .the net is now



being used to assault the leather-bound world of national regulations".<sup>152</sup>

A global system such as the Internet has changed, in a regulatory sense, where corporations go to determine the business environment in which they operate.<sup>153</sup> Who and what to influence has changed; the price and currency of that influence has changed and national governments have only limited power to influence the outcomes at an international level.

The 'regulatory relevance' test is done using three foundation documents. The first is the 1 July 1997 Clinton Administration's *A Framework for Global Electronic Commerce*<sup>154</sup> (referred to as the Framework), the second is the June 1998 *Memorandum of Understanding between the US Department of Commerce and ICANN*<sup>155</sup> (referred to as the MoU) and the May 1999 *GAC Operating Principles*<sup>156</sup> (referred to as the Principles).

The GAC is the only formal way in which national governments are involved in ICANN's decision-making processes. An understanding of the structure and outcomes

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<sup>152</sup> Taggart 2000: 2.

<sup>153</sup> The market for online services is much broader than the domain name registration sector. However, for some quick analysis, statistical information about the domain name registration business, for example, can be found at US Bancorp Piper Jaffray *Consolidation of the Domain Registration Industry* <http://www.gotoanalyst.com/piperpublic/goto/index.asp> and *State of the Domain* at <http://www.sotd.info>.

<sup>154</sup> Found at <http://www.ta.doc.gov/digeconomy/framewrk.htm>. The 5 June 1998 US Department of Commerce Statement of Policy, *Management of Internet Names and Numbers*, sets out the US Government's intention to set up a private sector, not-for-profit organization for the implementation of that policy.

<sup>155</sup> Found at <http://www.ntia.doc.gov/ntiahome/domainname/icann-memorandum.htm>.

<sup>156</sup> Found at Section F in the Supplementary Material.

of the GAC is critical to assessing the relevance of national governments, in an international forum, and global Internet governance.<sup>157</sup> The full GAC participation charts are found at Appendix Three.

The research<sup>158</sup> here has found that, structurally and practically, the policy, regulation and management of global Internet resources is manifestly global in nature. It includes a wide variety of stakeholders, dominated by the private sector, with little attention given to the impact of national governments on ICANN's decision-making processes. There is no effective mechanism to allow national governments to be any more relevant than they have been to date.<sup>159</sup> At a domestic level, however, many national governments actively exercise their rights to manage their country codes in general, in accordance with the technical principles and policies that enable the global Internet to function efficiently.

## **Conceptual Framework**

Much work has been done on the impact of technology on regulatory arrangements and the shift in advanced economies from state ownership of networks (in particular telephone companies) to state regulation of privately owned

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<sup>157</sup> Unlike the ITU where a large number of players are representatives of national governments and the decisions made by those representatives are binding on member nations, the majority of ICANN attendees are from the corporate sector and the deliberations of the GAC are not binding on attendee countries and the majority of attendees are representatives from corporations.

<sup>158</sup> The reverse analysis, which is testing the influence of corporations on the policies and processes of ICANN and Internet governance, is discussed in Chapter Six.

<sup>159</sup> This may change rapidly if the work of the Evolution and Reform Committee is implemented under the new Chief Executive Officer. The ERC proposals deliberately involve national governments to lend legitimacy to ICANN's work, to establish more reliable sources of funding and to better represent a wider variety of constituents. <http://www.icann.org/committees/evol-reform/links.htm> holds all the relevant documents on the reform process.

and managed networks<sup>160</sup>. Whilst it is not a new phenomenon, understanding the impact of technology on regulation is particularly important in this work because the mandate and mission of ICANN and the involvement of its advisory committees, such as the GAC, is very specifically about the technical management of Internet architecture.

In addition to considerations of the impact of technology on regulation, there are two other conceptual foundations for this work. They are diametrically opposed.

The first is the now somewhat outdated view that the Internet is necessarily free of government regulation. For the purposes of the discussion here, the Internet is only discussed in the context of the underlying network rather than the application layer of the node-based resource that provides the basis for e-mail, web-publishing, procurement and payment systems utilised by end-users. It has been argued by many Internet traditionalists that the Internet should be free of regulation<sup>161</sup>. This view has not been borne out in any comprehensive manner, although differing national efforts to manage a 'borderless' global resource have had varying degrees of success. Content is regulated, broadcasting over the web is regulated, online gambling and commercial transactions and other activities are all regulated in one way or another in most jurisdictions around the world.

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<sup>160</sup>In particular, Lawrence Lessig's work can be found at <http://cyberlaw.stanford.edu/lessig/>. *Code and Other Laws of Cyberspace* is the most useful.

<sup>161</sup> Most notable amongst those are the technocrats and civil society advocates such as John Perry Barlow. See his work at <http://www.eff.org/> and in particular the utopian 1993 *Declaration of Independence of Cyberspace* <http://www.eff.org/~barlow/Declaration-Final.html> where issues of sovereignty and consent to be governed are canvassed.

The technical resources that make the Internet work have always been highly regulated but not in the traditional sense that governments have done the regulating. Rather, there have been very clear rules about how to make a technical system of linked computers communicate effectively with each other. These rules are contained in the RFC documents<sup>162</sup>. The function and management of these rules now rests with ICANN, assisted by such groups as the IETF<sup>163</sup> and the W3C<sup>164</sup>.

The second underlying concept is that governments of many persuasions have changed, and continue to change, the way they think about their role as 'governors'<sup>165</sup>. The findings here track the approach and expectations of government, and the influence and attention they have received from corporations who play an active role in the governance of Internet architecture.

Historically, it seems that the GAC was an afterthought, a condition without which the DoC and ICANN MoU would not proceed. At a time when governments are, in many countries, shifting to self-regulatory models, the formation of the GAC is a puzzle. Even more of a conundrum was the formation of a body of government representatives who, prior

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<sup>162</sup> These rules and the history of how they came about can be found at <http://www.rfc-editor.org/>.

<sup>163</sup> Full information is found at <http://www.ietf.org/>.

<sup>164</sup> Full W3C information is found at <http://www.w3.org/>.

<sup>165</sup> Space limitations prevent a detailed discussion of the very extensive literature on changing conceptions of the state and government, evident in the 'Thatcherist zeitgeist' that saw privatisation of communication networks across the EU, Australasia and other regions. The writing of Anthony Giddens is a useful entry point into the literature, including notions of the 'Third Way'. Discussion of the Third Way of political evolution can be found at, amongst many places, [http://www.ppionline.org/ppi\\_ka.cfm?knlgAreaID=128](http://www.ppionline.org/ppi_ka.cfm?knlgAreaID=128).

to this time, had limited international clout and were responsible for domestic matters only. Former ICANN Board Member Greg Crew's view is that ". . . With the increasing importance of the Internet, national governments argued that they should have the authority to assign control of their ccTLD. This was creating political problems, as existing ccTLD administrators were reluctant to concede authority, and in any case there is not a one-to-one relationship between country codes and national governments". (Crew 2000: 5)

That was the case with respect to the .au delegation which, as explored in Chapter Seven, was re-delegated without the consent of the original IANA representative.

The GAC is dealt with in close detail in Chapter 5 on the relevance of governments in regulation. However, it is worth, in the context of this chapter on ICANN, to expand that analysis. The GAC's work is reproduced on their website with a full list of the meeting communiqués issued at successive ICANN meetings.

Close study of those communiqués shows that the critical action of ICANN takes place in the DNSO and other constituency meetings and the GAC provides general advisories on issues of interest to national governments with little impact on the more commercial decision-making of the Board.

## **National Governments & Internet Governance**

Governments have never been able to govern outside their clearly defined national jurisdictions, as they have no authority to do so<sup>166</sup>. The management of global resources

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<sup>166</sup> There is enormous disagreement about the validity of jurisdiction. For example, with respect to the management of territorial waters, overfly zones and, as an

such as fishing rights, the allocation of international telephone numbers and international air safety standards has been achieved with the cooperation of governments through a variety of bi-lateral and multi-lateral forums. The management of Internet addressing, now the core responsibility of the ICANN<sup>167</sup>, offers a new perspective on the globalisation of regulation. It is a perspective that puts the regulatory relevance of governments under the spotlight when, historically, it was clearly the intention of the architects of the Internet to follow a course firmly within the realm of the private sector.<sup>168</sup> The evidence for this flows through the early RFCs<sup>169</sup>, the *Framework*, and the subsequent development and implementation of the MoU between the US Department of Commerce and ICANN.

National governments have successfully asserted the right to determine policy and implement regulations that affect their constituents such as the management of on-line content, the payment of taxes on electronic transactions and broader consumer protection matters as well as the need to provide for communications interception under appropriate authority. Those assertions relate to the application layer,

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extension here, the validity of global rules for all manner of disputes. Braithwaite and Drahos' work is helpful in unravelling the nature of many disputes in different kinds of industry sectors.

<sup>167</sup> <http://www.icann.org>

<sup>168</sup> Works such as Abbate (1999) and Berners-Lee and Fischetti(1999) demonstrate that the progenitors of the Internet (and to a lesser extent of the world wide web) envisaged those resources primarily as mechanisms for the exchange of information within quite small technical communities, borderless mechanisms that (unlike telephone companies in the EU and Australasia) weren't owned by the government or (as in the US) needed to be closely regulated by the government. They did not foresee the explosion of electronic commerce and other applications and did not anticipate the Internet's rapid adoption by the general community in advanced economies.

<sup>169</sup>The RFCs are found in full at <http://www.rfc-editor.org/>

that is, what end-users do with the Internet, and essentially do not explicitly concern the overall architecture of the Internet or questions of naming policy.

The Australian Government has charted a course that explicitly shifts the burden of regulation to the private sector<sup>170</sup>. Other governments have done that as well, most notably in Canada CIRA<sup>171</sup> and the United Kingdom with Nominet<sup>172</sup>. The management of the .nz ccTLD is firmly within private sector responsibility and is managed by the Domain Name Commissioner, a part of the Internet Society of New Zealand<sup>173</sup>. Despite this, the governments of Australia, Canada, the UK and New Zealand regularly send representatives to the GAC meetings.

National governments have continued, in the context of matters that relate to Internet policy, to set frameworks and standards appropriate to their political systems. For example, whilst some would not agree with the approach, the Chinese Government has successfully limited access to materials it judges inappropriate and harmful such as the Google search engine<sup>174</sup>. The Australian Government has enforced

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<sup>170</sup> A paper was also prepared and presented to the March 2003 ITU *Workshop on Member States' Experiences with ccTLDs*. <http://www.itu.int/itudoc/itu-workshop/ccTld/029r1.html>. The chapter is also being published by the Murdoch University Law School on-line academic journal.

<sup>171</sup> CIRA (<http://www.cira.ca/>) is similar in its constitution to the .au Domain Administration (<http://www.auda.org.au>) in that they are both private sector, not-for-profit organization that manage the ccTLDs for Canada and Australia.

<sup>172</sup> The Nominet website provides a full explanation of its functions and policies. <http://www.nominet.org.uk/>. Its authority to act is found at <http://www.nominet.org.uk/AboutUs/Authority/>.

<sup>173</sup> <http://www.dnc.org.nz/>.

<sup>174</sup> See, for example, Shanthi Kalathil and Taylor Boas *Open Networks, Closed Regimes: The Impact of the Internet on Authoritarian Regimes*.

regulations on Internet Service Providers<sup>175</sup> with respect to content regulation, on-line gambling and consumer protection. Again, one might not agree with the method or policy, but national governments have avoided their predicted demise, continued to regulate as they wish and managed the changing business of government in accordance with their own policies. Internationally, however, the picture is slightly different.

### **National Governments: International Context**

Governance by the private sector of a global network of critical infrastructure is acutely important to corporations, to governments and to ordinary Internet users who rely on Internet applications for their e-mail, access to online information and business transactions. The protection of critical infrastructure is a matter of commercial imperative in addition to one of global network security. However, national governments have had limited involvement in the management of the global Internet for three key reasons<sup>176</sup>.

Historically, the Internet was the preserve of a private academic and research apparatus. In cases such as Africa, Latin America and parts of Asia, there were few (and still aren't many) connections to the Internet and, perhaps, no perceived need for governments to be involved. In an incremental sense, responsibility for anything that

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<sup>175</sup> The Internet Industry Association lists a full range of Codes of Practice (<http://www.iaa.net.au/contentcode.html>) that manage on-line activities such as gambling, privacy protection and content regulation.

<sup>176</sup> The only exception to this is the close involvement of the United States Government who, as evidenced in the analysis below, have sought to shift their responsibility to the private sector, explicitly as a matter of policy and also in response to claims that the Internet was being controlled as the preserve of the USA when, in fact, the Internet had become a global, public resource.



approximated Internet policy typically resided in agencies tasked with overseeing general telecommunications or broadcasting legislation.

Internet policy is a relatively recent phenomenon and one whose importance has increased as the global network of connections has grown. The applications on and utility of the Internet have increased with businesses around the world now depending on Internet services as a critical part of their operations. Universities and research institutions no longer constitute the greatest proportion of users; the 'market' for domain names now encompasses the general community in many countries.

The research has identified the different ways in which countries have approached DNS governance. These ways vary from the fully government controlled model to the fully private sector model where both industry-based organisations and not-for-profit self-regulatory agencies have been established. The research also shows where the regulatory relevance of governments has been reduced to nil. This occurs where an Internet country code has been re-purposed into an entirely commercial designation managed on a for-profit basis, such as the .tv for the country of Tuvalu. The application of the findings of the research to an understanding about internationalised regulation is constantly evolving. The international system of Internet governance, particularly with respect to its technical management, is still under construction.

The concept of regulatory convergence is important here as a means of understanding the interface between governments, their constituents and a global market place. Regulatory convergence can be characterised as the use of one set of regulatory instruments to manage previously

separated areas of government oversight such as broadcasting, telecommunications and information technology<sup>177</sup>. More importantly, the discussion in this work centres on the regulation of physical architecture rather than the services attached to it. As a consequence, the role of governments in global Internet management is carefully constrained.

In a 1999 article, Kahn and Cerf argue that “the reader should get a basic idea of the Internet, how it came to be, and perhaps even how to begin thinking about it from an architectural perspective. This will be especially important to policy makers who need to distinguish the Internet as a global information system from its underlying communications infrastructure” (Kahn and Cerf 1999: 1). The heart of the matter here is the final sentence, that is, that policymakers need to distinguish the Internet as a global information system, not one limited to national borders.<sup>178</sup>

### **The Framework for Global Electronic Commerce<sup>179</sup>**

The next section examines the foundation documents<sup>180</sup> that illustrate the structural and operational embedded

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<sup>177</sup> For example, in the Australian case, competition legislation is used to constrain market conduct across many industry sectors. The Australian Competition and Consumer Commission ([www.accc.gov.au](http://www.accc.gov.au)) administers that legislation.

<sup>178</sup> Whilst the arguments for a regulation-free Internet have circulated and driven the debate, it is interesting to note that the engineers responsible for making the system work have been little involved in that debate. One could argue that that is the case because, collectively, the technocrats believe that control of the architecture is governance and, in an implicit assumption, nothing further needs to be discussed.

<sup>179</sup> Found at <http://www.ta.doc.gov/digeconomy/framework.htm>.

<sup>180</sup> Following the 1 July 1997 *Framework* document, a *Request for Comments on the Registration and Administration of Internet Domain Names* was released. On 30 January 1998, a *Proposal to Improve Technical Management of Internet Names and Addresses* was released (also called the Green Paper). Responses to the Green

irrelevance of governments in the management of the technical resources of the Internet.

On July 1, 1997, the Clinton Administration released its *Framework for Global Electronic Commerce*. The key principles set out in that document have driven the establishment of ICANN. The *Framework* suggests that:

- The private sector should lead development of electronic commerce;
- Governments should avoid undue restrictions on electronic commerce;
- Where governmental involvement is needed, its aim should be to support and enforce a predictable, minimalist, consistent and simple legal environment for commerce;
- Governments should recognize the unique qualities of the Internet;
- Electronic commerce over the Internet should be facilitated on a global basis.

The paper recognises that “the Internet is being used to reinvent government...as the Internet empowers citizens and democratizes societies, it is also changing classic business and economic paradigms”. It continues by saying that “governments must adopt a non-regulatory, market-oriented approach to electronic commerce, one that facilitates the emergence of a transparent and predictable legal environment to support global business and commerce”. Finally, “governments can have a profound effect on the growth of commerce on the Internet. By their actions, they

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Paper were incorporated into the *Management of Internet Names and Addresses* and released on 5 June 1998 (also called the White Paper). The White Paper is a formal statement of policy from which the MOU was formulated between the Department of Commerce and ICANN and, subsequently, the GAC Operating Principles were adopted on 25 May 1999.

can facilitate electronic trade or inhibit it. Knowing when to act and - - at least as important - - when not to act, will be crucial to the development of electronic commerce”.

There are two threads of argument here. Firstly, the US Government is urging other national governments to follow the policy principle of “hands off, let the private sector manage” in the domestic arrangements for the Internet. Most notably, it is recognized that governments, of whatever persuasion, are urged to develop stable, predictable, transparent regulatory regimes to facilitate electronic commerce.<sup>181</sup>

The second is that all electronic commerce transactions rely on the Internet, which is to be managed by the private sector.

The *Framework* document articulates policy principles that led to more detailed discussion of DNS governance. To facilitate this further discussion, the DoC<sup>182</sup> released the *Improvement of Technical Management of Internet Names and Addresses; Proposed Rule*<sup>183</sup> and invited public comment.

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<sup>181</sup> A cynic may argue that this line of argument has been taken as a pure trade play – the majority of Internet businesses, content creators and distributors, retail outlets and service providers are US businesses who would benefit from unrestricted domestic arrangements for electronic commerce transactions. Further evidence of this view is found in Chapter 8 of the *Framework* document which presses for “no discriminatory taxation against Internet commerce” and “the Internet should function as a seamless global marketplace with no artificial barriers erected by governments” presumably things like content filtering, website blocking and expectations of technical standards that chill advances in technology.

<sup>182</sup> All the Department of Commerce’s documents are located at <http://www.ntia.doc.gov/ntiahome/domainname/index.html>.

<sup>183</sup> <http://www.ntia.doc.gov/ntiahome/domainname/022098fedreg.txt>.

## **Memorandum of Understanding**

The November 1998 Memorandum of Understanding (MoU) between the US DoC and ICANN expressed the intention to establish an organisation that reflected the policy and principles of the global Internet community. The MOU sets out some critical factors that guided the development of ICANN as an institution. Firstly, it clearly establishes the purpose of the organisation and seeks assurances from the private sector that it “has the capability and resources to assume the important responsibilities related to the technical management of the DNS”. It was clear that the developmental phase of the DNS Project was designed to forge policies and procedures that met the expectations of the DoC and which also responded to the input from the community about the nature and style of an organisation that was to reside firmly in the private sector.

The Principles under which ICANN was to operate reflected the policy context of the *Global Framework for Electronic Commerce* and subsequent DOC documents on DNS governance. The Principles focus on technical stability, the introduction of competition, bottom-up consensus policy development and global representation.

In the context of this chapter, nowhere in the sections on Responsibilities of the Parties (Section V A or in Section V C) is there reference to consultation with national governments nor the inclusion of the views of governments in any manifestation of the new organisation. Instead, the MOU concentrates on the robust and stable technical management of the DNS. The document was signed by ICANN and the DoC and forms the basis of the way in which the Corporation operates through its Constitution and By-Laws.

## **ICANN: Structure and Operations**

National governments have an advisory role in ICANN through participation in the GAC<sup>184</sup>. Membership is open to any government or recognised international organisation, such as the ITU and the EU. Members have no power to implement any binding resolutions (unlike the ITU); they have no power of sanction for misbehaviour (unlike the United Nations) and they have no global policy or standards setting power. The ICANN CEO's comments on the role of the GAC, set out below, acknowledge that ICANN expects the GAC to provide advice and channels of communication to national governments. There is no implication that ICANN will necessarily take GAC's advice.

In ICANN's current form, national governments have been deliberately and strategically marginalised<sup>185</sup>. This is due to a combination of an Internet 'free for all' tradition and the commitment, from the early 1980s onwards, of many first world governments to policies that foster industry self-regulation or, where possible, pure market regulation.

The establishment of constituencies, regulatory legitimacy and fiscal solvency have been significant

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<sup>184</sup> At the June 2001 meeting of the GAC, in an open session with ICANN staff, the minutes of the meeting reflect some views of the ICANN CEO, Dr Stuart Lynn, with respect to the role of the GAC. He said that he "sees the role of the GAC is to provide advice to ICANN adding that no one else can fulfil this task. He assured members that their advice will always be listened to and will have an effect. . . . Other role for GAC are as a forum for 'reverse advice', that is advice to Governments. He hopes that this is important to GAC as well so that the two-way channels of communication remain open. He also sees GAC as an opportunity to discuss other than pure ICANN matters".  
<http://www.noie.gov.au/projects/international/gac/meetings/mtg9/gac9min.html>.

<sup>185</sup> Whilst outside the scope of this chapter, it is interesting to read the results of a significant re-examination of ICANN's mandate and methods found at <http://www.icann.org/committees/evol-reform/proposed-bylaws-corrections-23feb03.htm>. ICANN is going to change significantly if the Evolution and Reform Committee recommendations and those of the current ICANN CEO gain any practical, operational traction.

motivators for the way in which national governments have approached the regulation of international resources. This is certainly the case with respect to ICANN. The structure of ICANN deliberately establishes different areas of influence, for example, catering for representations from corporations, country code managers, the technical community and the broader Internet community.<sup>186</sup>

### **GAC Operating Principles: Embedding Powerlessness**

The May 1999 Governmental Operating Principles recognise the functions of IANA and ICANN and, even though the involvement of governments is not referred to in the MOU, ICANN's Articles of Incorporation mandate the establishment of an organisation that "shall operate for the benefit of the Internet community as a whole and shall pursue the charitable and public purposes of lessening the burdens of government. . .".

The key to ICANN's operational relationship with national governments is the operation of geographic country code identifiers such as .uk or .de or .au. In Section 4 of the May 1999 introduction to the GAC Principles, specific reference is made to ". . .Country code top level domains [which] are operated in trust by the Registry for the public interest, including the interest of the Internet community, on behalf of the relevant public authorities including governments, who ultimately have public policy authority

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<sup>186</sup>A full explanation of ICANN's constituencies is found on its website. One of the most important issues for the constituencies has been the perception and reality of influence at Board of Director level. See <http://www.icann.org/general/support-orgs.htm>.

over their ccTLDs, consistent with universal connectivity of the Internet”.

Whilst the GAC Operating Principles guide its operation and its effectiveness, Principle 1 of the Scope of the Governmental Advisory Committee is most important.

In looking at governance of Internet architecture and questions about control of domain spaces, we can usefully differentiate two levels. At the ICANN level, governments play a minor role. Corporations dominate the agenda, the production of documents, the consideration of issues and the outcome. However, at the national level and within the management of ccTLDs, the situation is different. The complicating factor is that quite often the delegate responsible for the administration of the ccTLD is not a government agency, never has been and never will be. In others the ccTLD management remains a government function<sup>187</sup>. As Taggart contends, “The nice thing about the Internet is that it allows you to link – cheaply – a number of jurisdictions with different characteristics” (Taggart 2000: 2). It does not, however, simplify making conclusions, at a general level, about the impact of national governments on Internet governance.

How does an understanding of the GAC contribute to an analysis of the shift by governments around the world to models of industry self-regulation, most notably in the telecommunications and Internet industries. Policies that encourage competition and market liberalisation are the main

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<sup>187</sup> Professor Michael Geist is doing interesting work in this area and has completed preliminary research on ccTLD managers. See, for example, <http://aix1.uottawa.ca/~geist/frameset.html>.



drivers of regulation and legislation within, for example, member countries of the World Trade Organization<sup>188</sup>.

Most importantly, rather than the private sector advising government on regulatory models and regulation, the GAC has an advisory (and only advisory) role within the ICANN structure.

This section of the chapter examines the structure of the GAC to illustrate that the relevance of governments in the deliberations of ICANN and the implementation of global DNS policy is moderate at best, inconsequential at worst. This is so not because of failure on the part of many governments but because of the structure of ICANN, and the functions of the GAC under its clearly defined Operating Principles<sup>189</sup>.

In addition to Principle 1, The GAC's other operating principles<sup>190</sup> include recognition that:

*. . . the corporation shall operate for the benefit of the Internet community as a whole and shall pursue the charitable and public purposes of lessening the burdens of government. . .*

It seems that governments have not yet able to have their burdens lessened by ICANN.<sup>191</sup> Indeed, ICANN's By Laws

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<sup>188</sup> See, in particular, Jackson's *The World Trading System: Law & Policy of International Economic Relations*, Hoekman & Kostecki's *The Political Economy of the World Trading System: From GATT to WTO* and Drahos with Braithwaite's *Information Feudalism*.

<sup>189</sup>The Operating Principles are found in full at <http://www.icann.org/committees/gac/operating-principles-25may99.htm>.

<sup>190</sup> See [http://www.noie.gov.au/projects/international/DNS/gac/GAC\\_OperatingPrinciples.htm](http://www.noie.gov.au/projects/international/DNS/gac/GAC_OperatingPrinciples.htm).

<sup>191</sup>Governments, the "weary giants of flesh and steel", have not despite the urgings of Perry Barlow and others in the *Declaration of Independence of Cyberspace*, thrown to the occupants of cyberspace responsibility for managing the Internet generally nor its architecture in particular. The burden of governments in this space has not been lifted. It requires a burden of consideration to decide to actively pass authority to the private sector. The experience of the Australian Government in determining its

make provision for the development of an advisory committee to:

*Consider and provide advice on the activities of ICANN as they relate to concerns of governments, particularly matters where there may be an interaction between ICANN's policies and various laws, and international agreements. . .*

The remaining 54 principles of the GAC are without surprise. The GAC is an advisory body with no lawmaking capacity which has specific meeting rules and procedures.

What does Principle 1 mean in effect and what impact does the GAC have on ICANN Board Decisions?

Analysis of the structure and function of the GAC is discussed here because it demonstrates where governments have ended up in the broader governance continuum. It also demonstrates their relevance to the governance of Internet architecture at a global level.

GAC is not a policymaking body but can reflect domestic policy imperatives and then have these recorded as part of a general communiqué. Domestic constituents are one of many, probably competing, voices in an environment which has no policy setting authority and certainly no direct ability to change the course of events.

There are, in the Recitals prior to the Operating Principles, some significant statements that frame the notion of a global Internet outside the boundaries of national jurisdiction.

ICANN's By-Laws enable the formation of a GAC and have the implication that the GAC is excluded from meaningful participation in the technical discussions which

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role in the management of the broader domain name industry bears that out. In addition, there is an ongoing commitment of resources to the GAC within ICANN.

<http://www.eff.org/~barlow/Declaration-Final.html>.

ICANN may have<sup>192</sup>. Further in the Operating Principles it is noted that “the Internet naming and addressing system is a public resource that must be managed in the interests of the global Internet community”. The phrase ‘global Internet community’ is, on its face, fairly innocuous. However, it clearly establishes an undefined constituency, on whose authority ICANN must and does act. That description forms a new problem for governments. Their constituents, usually constrained by electoral rolls, voter registration cards or other state based methods of working out who is eligible to vote, have a new place to exercise their power. Cyberspace has become a location for what’s asserted as a new community; an e-mail address the entrée to that space. Who is entitled to govern, with what authority and in what way remain critical questions<sup>193</sup>. ICANN has evolved, and governments are not involved in its work because many nation states do not, either actively or passively, consider the management of Internet architecture within their realm of influence.

The fact that many millions of people around the world do not have an e-mail address now and are unlikely to have one in the mid-term, is a problem for those that claim cyberspace is a global community. Access to that community requires electricity (which millions don’t have), as well as

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<sup>192</sup>A contrary view may be that governments could indeed regard the management of technical resources as part of their ambit of concerns. They may also choose to express their power outside the forum of ICANN, for example, in the deliberations of the ITU. However, it seems that their concerns are narrow and more a more specific understanding of this view would be possible if the GAC meetings were open to the public. There remains then two critical questions – what are the interests of governments in this sphere and have governments deliberately chosen to withdraw from the discussion at an international level?

<sup>193</sup> Whilst outside the scope of this work, the history of the At Large Constituency, the failed global election system and the ongoing tensions in creating a global Internet community of individual users and addressing their perceived needs continues. <http://www.icann.org/committees/alac/>.

equipment, literacy skills and physical abilities beyond what many have.

It is arguable that the constraints of the failure to more carefully define an Internet community (and to manage the capture of the process of, for example, the At-Large community) may, in themselves be the limiters of the power of that group. Perceptions (and the reality) of national capture of the At Large process by the Chinese and Japanese during the first elections was an enormous issue both practically and from a broader policy perspective.

### **The New Governance Continuum**

In Chapter Two, I outlined the equations for balancing a new paradigm of control. These pairs of concepts are a mechanism for thinking about regulatory relevance – who and what have relevance where. One can then map public sector influence flows in the small but critical world of Internet governance. The environment is still evolving and is very volatile in terms of the key actors and personalities.

We can, however, say that the GAC operates in an environment which is developing regulation with global impact; that technology is critical to the shape of that regulation and that policies about that regulation vary at a national level.

Kolb and Schwarz argue that “the borderless world of the Internet is causing governments everywhere to re-examine their policies and practices toward commercial activity”.<sup>194</sup> I have found through this research that my

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<sup>194</sup> Op cit, p2

central hypothesis, which is characterised by three components, has been proven correct. I consider firstly:

*That national governments are losing both the right and the ability to regulate the domain name system.*

The notion that “the nation-state remains our fundamental unit of government” but that “transforming the business of government is now an accepted necessity” is central here (Ticoll 1999: 1). It is clear that national governments have both lost the right and, in some cases, willingly ceded it to ICANN. Even though the GAC has no formal, binding power, its meetings have been attended by a wide range of government representatives and international organisations<sup>195</sup>. It has released a series of meeting communiqués on a wide variety of issues<sup>196</sup>. These communiqués are made public and are received by the ICANN Board. The content of the communiqués do not bind the Board to act in a particular way, they merely act as advisories.

Further, the deliberations of the GAC are not binding on its members in the same way, for example, as decisions of the ITU bind its member states.

In essence, the GAC provides a forum for governments to discuss, in a closed environment, all manner of issues but its deliberations are a mechanism for discussion not action.

Moving to the second part of the hypothesis, I have argued:

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<sup>195</sup> The accredited membership of the GAC is listed at [http://www.noie.gov.au/projects/international/gac/contact/gac\\_representatives.htm](http://www.noie.gov.au/projects/international/gac/contact/gac_representatives.htm).

<sup>196</sup> The communiqués are found at <http://www.icann.org/committees/gac/communique-30oct02.htm>.

*That the regulation of disputes in an electronic marketplace is moving towards arrangements financed and enacted by the private sector and that, in return for the financing of that regulation, the private sector require a commitment from government to more flexible regulatory responses*

In the governance continuum this is, clearly the case. It is entirely why ICANN exists and why it is able to do what it does. Internet governance cannot happen without the private sector contributing to the substantial costs associated with that governance. The public sector and its national government manifestation, continues through the GAC, to do some of what it has always done without the power of binding multi-lateral decisions. Threats to withdraw funding or failure to meet financial obligations with respect to ICANN's budget have been used by some of the constituencies (most notably, the ccTLD group). Governments have a financing burden with respect to the GAC and membership dues have been the source of some angst. Typically, threats to withhold money have been used to focus ICANN on its mission. Without money, it cannot hire staff, provide outreach activities or complete its work.

*That the regulatory treatment of the DNS illustrates a fundamental and irrevocable shift away from centralised government regulation to private sector driven regulation*

Finally, it is clear that that corporations have been obliged to take on an increasing regulatory load and have, in turn, forced the shift to industry-led, market dominated regulation at the expense of governments. How much governments may have ceded and the private sector may have taken away still depends entirely on one's perspective.

Sassen argues that "...the new geography of global economic processes, the strategic territories for economic

globalization, have to be defined in terms of both the practices of corporate actors, including the requisite infrastructure, and the work of the state in producing or legitimating new legal regimes. Views that characterise the national state as simply losing significance fail to capture this very important fact and reduce what is happening to a function of the global-national duality: what one wins, the other loses."<sup>197</sup> This is still a process in transition. ICANN is a product of its time, with a larger political and policy agenda within which it operates. It is indicative of the way in which technology affects regulation but the process is sufficiently immature that much work still needs to be done.

Sassen is correct and the research here bears that out. The regulatory horse-trading that has taken place in the management of the DNS is momentous. It encompasses the ceding of responsibility through deliberate policies of industry self-regulation; the loss of power because the Internet started from a non-regulatory tradition; to the shifting balance within nations on questions of how a global resource may be managed and the realities of actually doing that effectively.

## **Conclusions**

Jayasuriya argues that ". . . Globalisation is reshaping the fixed and firm boundary between domestic and international spheres and changing our conceptions of the proper domain of domestic and international politics and law" (Jayasuriya 1999: 425).

Governments are in a position to set policy and legislate or regulate whilst at the same time corporations like ICANN

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<sup>197</sup>Sassen 1996: 26.

are manifestations of a new type of structure, outside the scope of governments and their constituents.

Connors argues that “. . .A global medium like the internet requires a global law. Right now there is no international legislation” (Connors 2000). There are many who argue that the Internet requires no special legislation as what is illegal offline is illegal online and existing private law effectively addresses jurisdictional concerns. It is clear that ICANN presents us with a different way of viewing matters. One can collapse the spectrum of views from Reidenberg and Giddens by recognising that ICANN is only concerned with architecture and not concerned with all law, all regulation and all Internet activity.

It is not, in an operational sense, concerned with making the world a more civil space, even though much time has been spent on hearing the civil society advocates. Some governments have recognized that ICANN is not designed to bear the burden of making information privacy easier or facilitating more democracy around the world.

In summary, ICANN is not relevant to some regulatory purposes such as the management of content or developing answers to the many questions posed by civil society advocates. This has been argued often and the fruits of that argument are now being found in the Evolution and Reform Committee implementation plan.

The approaches of some governments consistently demonstrate that, as institutions, governments are strategically and of necessity rethinking their place in a digital world. Definitive answers are not yet obvious although trends



towards recognition of global standards and solutions (such as those being developed in ICANN<sup>198</sup>) are emerging.

Domestically, governments are recognising the inevitability that, in many areas, industry is taking the lead in developing regulatory standards and compliance regimes which reduce the relevance of government in direct regulatory involvement. Where governments remain universally strong is the articulation of desirable social policy outcomes with respect to access to information technology. An important part of that picture is the development of global trade in goods and information. The relevance of governments in the resolution of disputes in electronic commerce could usefully be examined further. Governments may indeed find themselves completely marginalised, despite the best efforts of regulators and legislators to remain central to that debate, as corporations seek other solutions to commercial disputes. Sassen, however, takes a more moderate view. Governance, at this stage of ICANN's development, is not a give or take equation. It is, instead, a more fluid process but, under the current construction of the GAC rules, national governments have few mechanisms to influence the ICANN's policy outcomes.

I now focus on the influence of corporate strategy on the development of regulatory models for the management of the DNS.

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<sup>198</sup> ICANN UDRP can be found at <http://www.icann.org>.

## **CHAPTER SIX - COSMOCRACY: CORPORATE STRATEGY AND THE DEVELOPMENT OF INTERNET GOVERNANCE MODELS<sup>199</sup>**

### **Introduction**

The chapter focuses on the globalisation of regulation, management of the DNS and the influence of corporations on regulatory structures. It is particularly concerned with understanding the commitment of corporations to setting a new regulatory agenda. It discusses the costs and benefits of engagement in self-regulatory authorities, such as ICANN, by the private sector. It examines early data on the type of corporations and individuals that are key global stakeholders in the management of Internet architecture.

The chapter makes some conclusions about the criticality of corporate engagement in the establishment of cosmocracy. This includes identifying the mechanisms and global actors responsible for shaping a new regulatory economy around the architecture of the Internet.

### **Background**

This chapter follows three key threads. It presents an extension of the conceptual framework around corporate strategy and lobbying in the new environment of Internet governance.

The chapter presents early findings from a set of core data on attendance at ICANN meetings from November 1998

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<sup>199</sup> This chapter is to be submitted to *Berkeley Technology Law Journal*, <http://www.law.berkeley.edu/journals/btlj/articles/submissions.htm>.

to November 2001<sup>200</sup> which tracks the engagement of key corporations in the development of ICANN policies and in operational decisions about the expansion of the DNS.

It points to some early methodologies for more rigorously tracking a new demographic of influence in the global management of the DNS in order to understand the success of corporations in influencing ICANN decisions on both the formulation of policy and implementation of that policy, for example, the rules for and selection of seven new gTLDs<sup>201</sup>.

Some qualifications are necessary about the baseline data used for the analysis. Firstly, the records of attendance at ICANN meetings are often inaccurate, with duplicate names, clearly false or bogus names, and registrations which may not necessarily reflect actual attendance. For example, a person could register for the meeting and not attend or only attend for one session or the opening reception. For three meetings, the Singapore, Berlin and Santiago meetings, only remote participation figures are available although physical meetings took place (evidenced by the meeting archives held on ICANN's website).

However, some very clear patterns have emerged which identify key corporations and their representatives who have consistently attended the meetings and who have been

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<sup>200</sup> These meetings were held on 2-4 March 1999 in Singapore, 25-27 May 1999 in Berlin (Germany), 23-26 August 1999 in Santiago (Chile), 1-4 November 1999 in Marina del Rey, California, 7-10 March in Cairo (Egypt), 13-17 July 2000 in Yokohama, Japan, 13-16 November 2000 in Marina del Rey, 9-13 March 2001 in Melbourne, Australia, 1-4 June 2001 in Stockholm, Sweden, 7-10 September 2001 in Montevideo (Uruguay) and 12-15 November 2001 in Marina del Rey. I attended 7 of the 11 meetings.

<sup>201</sup> The policy for the introduction of new gTLDs is found at <http://www.icann.org/yokohama/new-tld-topic.htm>.

actively involved in the Constituency working groups such as the Registrars' Constituency<sup>202</sup>, the gTLD<sup>203</sup> and ccTLD Registry Constituencies and the Intellectual Property Constituency. For three reasons, I focus here on the Registrars and gTLD Registries. Firstly, the data is most reliable. Secondly, registrars and the registries are the corporations with the most to gain, commercially, from ICANN's decision making both in the manner in which decisions are made and the actual decisions which are implemented. Thirdly, Registrars and Registries have been the most publicly active in driving the ICANN organisation to formalise its procedures, especially in developing and implementing development of consensus driven policy.

This early work<sup>204</sup> is being used to develop more robust methodologies to determine the success of corporations in getting what they want, which is not always clearly articulated, from the organisation tasked with managing the critical infrastructure on which their businesses rely. A new demographic of influence will be published in the near future which will include a matrix of key actors, both corporations and individuals and a map of the influence of those actors on decisionmaking within ICANN.

The chapter contributes to the debate on the globalisation of regulation and provides some original conceptual thinking on the demographics of influence. It also

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<sup>202</sup> The Registrars' Constituency website is found at <http://www.icann-registrars.org/>

<sup>203</sup> The gTLD Registries Constituency website is found at <http://www.gTLDregistries.org/>

<sup>204</sup> The baseline materials are derived from publicly available meeting dates and attendance records at ICANN meetings. The issues – both procedural and commercial – are sourced from ICANN Board meeting minutes which are found on the ICANN website.

presents data which has not been previously collated and analysed in any detailed way. The charts and dissection of the data into categories are found in the Appendix Three at the back of the document.

## **The Hypothesis**

I return briefly to the three key parts of the hypothesis for the broader work of which this chapter is a critical part. Firstly, that national governments are losing the right and the ability to regulate for the resolution of disputes in the DNS. Even though national governments are important domestically, the business of public sector regulatory agencies is changing rapidly.

Secondly, that the regulation of disputes in an electronic marketplace is moving towards arrangements financed and enacted by the private sector. In return for the financing of that regulation, the private sector requires a commitment from governments to more flexible regulatory responses.

Thirdly, that corporations have been obliged to take on an increasing regulatory load and have, in turn, forced the shift to industry-led, market dominated regulation at the expense of public sector, government policy driven governance. The normalisation of the technical management of the DNS illustrates a fundamental and irrevocable shift away from centralised national government regulation to global private sector regulation driven by the development of operating standards and other regulatory instruments such as accreditation procedures for registry operators and registrars

To understand the impact of corporate involvement in not-for-profit private sector regulation of critical infrastructure such as the DNS one needs to map the intersection of

corporate capacity to pay for the determination of regulatory, and hence commercial, outcomes against the power of personalities in the absence of objective regulatory structures with clearly formulated policies and procedures.

The broader Internet and, in particular, the regulation of the DNRI illustrates emphatically the way in which an industry has become globally accessible. The globalisation of regulation is not a new phenomenon. The shipping and aviation industries have global rules (for example, using English to communicate and international agreements about liability for lost luggage or personal injury); the financial service sector operates on global standards (such as the use of SWIFT codes) and there are global standards for the computer software industry (for example the use of character sets such as ASCII and open source software such as LINUX).

The new research presented here indicates that the regulatory treatment of the technical management of the DNS demonstrates a fundamental and irrevocable shift away from centralised government regulation to arrangements funded and managed by the private sector. The findings support the work of Braithwaite and Drahos in terms of identifying new models of global business regulation. The work of Mueller and Lessig is also important here. Mueller has taken the approach of analysing institutional innovation; Lessig the impact of technical regulation or the importance of code in determining regulatory outcomes. The work of Sassen on globalisation, particularly with respect to the shifting balance of power between the private and public sectors, is also borne out by the research data.

In essence, the control of rulemaking determines the nature and extent of business opportunities, both for the domain registration industry and the wider corporate sector

that relies on a physical and electronic market place. Work in progress allows the formation of some conclusions about the success of corporate strategy on building Internet governance structures and the impact of domain name registration businesses on the formation of ICANN.

## **Why is the work important?**

The criticality of the DNRI is set out neatly in an early ICANN document on registrar accreditation<sup>205</sup>. It says,

*The Internet Domain Name System (DNS) provides functions necessary for virtually all Internet activities. If the Internet is to continue to grow, DNS services must be reliable, secure and cost effective.*

*A major goal of an Internet registrar accreditation system, therefore, is to establish and apply criteria for the business and technical environment and processes of registration such that stability of the DNS is maintained while at the same time encouraging robust competition in the delivery of registration services.*

*The following list of principles is intended to provide a basis for the development of specific accreditation guidelines. Public comment on the principles is solicited.*

*1. The registration system should be convenient and easy to use from the perspective of individuals or organizations wishing to use domain names. The system should allow portability of domain name registration from one registrar to another without disadvantage to the domain name holder, and should put all registrars on a level playing field with regard to access to registries.*

*2. The registration process should embrace standard principles of good business practice, including legally enforceable commitments by the parties to the registration agreement. To the extent feasible, it should contain procedures designed to prevent or minimize fraud or other forms of illegal behavior associated with the assignment of a domain name, and to ensure that the registrar's obligations to its customers and to the registry administrator will be fulfilled in the event that the registrar goes out of business or otherwise fails to perform.*

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<sup>205</sup> <http://www.icann.org/singapore/draftguidelines.htm>.

*3. The registration agreement should protect legal rights (including intellectual property rights) of the parties, and of third parties where applicable. It should contain provisions that minimize disputes over rights to use of particular domain names, and in the event of dispute, it should contain provisions that enhance the orderly and timely resolution of disputes.*

*4. The information obtained from applicants for domain names should include only the data elements reasonably needed for the assignment and use of the name. Registrars and other parties acquiring, storing and using such information should be bound by reasonable privacy principles, consistent with facilitation of dispute resolution and law enforcement. Domain name applicants should have an opportunity to register names on behalf of third parties who wish to remain anonymous.*

*5. The registration system should promote worldwide access to domain name registration services and encourage the development of alternative business models for successful registration services.*

With many competing registrars<sup>206</sup> and a self-organising model of policy development, it is predictable that registrars would both want to manage the environment in which they operate and be prepared to facilitate the most advantageous rules of engagement. The same is true of registry operators.

### **Cosmocracy: Who, What and Where?**

Much work has been done to frame and understand the impact of corporate lobbying on regulatory institutions<sup>207</sup>. The literature is expanded here by some early analysis of the way in which corporate strategy has shaped Internet governance models and, in particular, the development of ICANN. The data has elicited two special terms, the cosmocracy and cosmocrats. The term cosmocracy is new. The cosmocracy is an ill-defined place populated by a loose group of cosmocrats, the new class of regulatory agents.

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<sup>206</sup> The full list of approximately 120 ICANN accredited registrars is found at <http://www.icann.org/registrars/accredited-list.html>.

<sup>207</sup> Braithwaite & Drahos (2000), Arup (2000) and de Figueiredo & de Figueiredo (2002) are all useful starting places on global business regulation. Sassen (1996, 1998) is helpful in framing governance and accountability.



Cosmocracy supplants traditional public sector bureaucracy; cosmocrats replace government bureaucrats in a new regulatory economy.

To make some determinations about cosmocracy, cosmocrats and the governance of the DNS, I have collated early data from a series of ICANN meetings. This data is also used to understand influence flows and corporate strategy in the ICANN environment on two levels. The first is the formation of procedures and rules of engagement in the process; the second is the making and implementation of operational decisions.

This early data is interesting and important. Interesting because it extends the literature on corporate lobbying into new terrain; important because Internet governance has a direct impact on the way businesses conduct their operations around the world.

The data that supports this analysis is collated from the publicly available registration records from ICANN meetings between the 1999 Berlin meeting and 2001 Marina Del Rey meeting.

The registration records have many flaws including duplicated names, names that are clearly false, inconsistent entries and missing data, for example, omission of a registrant's affiliation or company name. The registration records do not indicate actual attendance. For example, a person can register for the meeting and, for whatever reason, not attend. Registration also does not indicate the time at the meetings. For example, a registered person can attend one session or an evening social event and participate no further. The meetings are public and open to anyone to

attend<sup>208</sup>. Some of the meeting records do not reflect GAC member attendance that may skew both the number of attendees and the allocation across key categories. Finally, ICANN allows remote participation. Capturing the on-line attendees and analysing their participation is difficult.

Having said that, the information is stark in its illustration of the dominance of business interests in ICANN meetings and decision-making. For this chapter, I have only focused on physical attendees but the <http://cyber.law.harvard.edu/icann/> archive holds all the remote participation information.

Some key characteristics of the data are as follows. The first subset of the registration details is the Business (B) group. This group includes commercial registrars, registries, law firms, content providers and trademark owners, journalists, technology companies such as IBM and CISCO and industry advocacy groups. This group is generally represented in the DNSO constituency and is spread across all the various parts of the constituency. The <http://www.icann.org/dns/dns.htm> is comprised of registrars, registries<sup>209</sup>, Internet Service Providers (ISPs) and connectivity providers, business operators and the intellectual property community. By far the largest subset of the Business group is the registrars. There are 121 ICANN accredited registrars, many of whom regularly attend the Registrars' Constituency meetings which are part of the broader ICANN agenda

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<sup>208</sup> Until the post September 11, 2001 meetings, security and proof of identify were fairly loosely monitored so an unregistered person could attend the meetings.

<sup>209</sup> Both ccTLD and gTLD registries, although the formation of the ccNSO has taken ccTLD registry operators out of the DNSO.

For completeness, the remaining categories are (G) government and quasi-government agencies such as the European Commission, the WIPO and representatives to the GAC. Group (N) are principally engineers and technical experts who are concentrated in telecommunications companies, hardware and software providers, the ITU, the ISO and ISOC. Group (A) includes academic and research organisations and civil society advocates such as the Center for Democracy and Technology and the Markle Foundation. Group (U) are unidentified or have no obvious affiliation. Group (I) are ICANN staff.

The data shows that, overall, more than half the participants are from North America. Approximately one quarter of participants are women and, for the period of the data collection, this translated into either one or two female ICANN Board Directors. There is some overlap between categories, for example, businesses such as IBM and AOL Time Warner are content providers and network operators or suppliers of network infrastructure. Some of the academic institutions are ccTLD administrators as are some ISOC representatives. Some law firm representatives (such as those from Shapiro Cohen) are also represented as ICANN Board members as are some telecommunications company representatives (such as MCI WorldCom).

There is a consistent Australian and New Zealand presence, out of proportion to the representation from Europe which is dominated by the Scandinavians and Germans. There is only a small and inconsistent representation from southern Europe. In the GAC context, this is perhaps explained by representation from the European Commission. India, despite its strong IT, software and call centre sector, is poorly represented. Representatives from Korea seem to

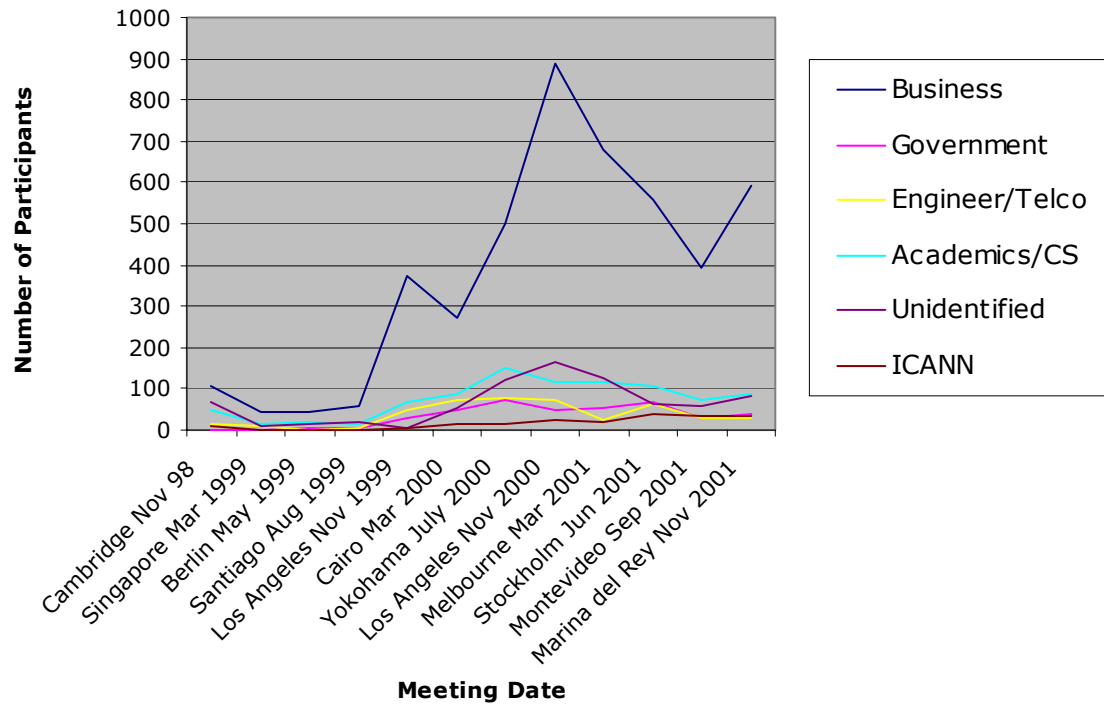
outweigh their counterparts from either China (including Hong Kong) or Japan. There is very little representation from the South Pacific, the developing South East Asian region or Africa.<sup>210</sup> As is demonstrated later in the chapter, it is likely that the cost of participation limits the opportunity for representatives from poorer countries to participate. The chart below illustrates the proportion of business representation over the remaining groups.<sup>211</sup>

The data in the chart below also needs to be read with some caution. For completeness, data was included for all the meetings between November 1998 and November 2001. However, for the Singapore, Berlin and Santiago meetings, only on-line participant data was available. In future research, these three meetings will be removed and the full range of meetings through 2003 included. The latter two years of meetings will give a clearer picture of who is participating in which groups and, over time, the establishment of demographic data which can identify, for example, education, experience and linguistic background.

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<sup>210</sup> Further research has been done to dissect the GAC meeting attendance. The data is found at Appendix Three.

<sup>211</sup> No comparison has yet been done on business participation within other international organizations such as the ITU, WIPO or the WTO. This will be done in future post doctoral research.



To shift now from general data to specific, I have focused on the data which refers to registrars and registries. The data is verified by analysing the spread of the top 25 registrars in the *State of the Domain* data<sup>212</sup>. There is a consistent group of corporate representatives from a mix of countries who have appeared at consecutive ICANN meetings.

From this data we can infer that corporations are committed to the ICANN agenda, in both the development of policy and influencing operational decisions. The charts at Appendix B show the consistency of participation and the approximate size of each corporate delegation.

The cost of participation is a key factor in the success of the bottom-up, consensus-driven policy formulation exercise which is undertaken. I have estimated some of the costs of

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<sup>212</sup> Found at <http://www.sotd.info>. Archival information is also available which show that the top ten registrars have remained fairly static.

this participation as an indicator of the willingness (and necessity) of consistent participation. Control of the development of regulatory processes, of procedure, of agendas, of the act of drafting consensus positions is critical to the success of any business wishing to engage in the wide range of potential operations that rely on the Internet network for their success. I extend Mueller's contention that ". . .Institutions channel human behavior into certain paths by affecting relative transaction costs; i.e., by making some kinds of interactions highly costly and uncertain while making others convenient and secure". (Mueller 2000: 2)

There are, of course, many factors such as the views of governments, the influence of other peak bodies such as the ITU, the International Chamber of Commerce, and the broad Internet user community that have a great bearing on any outcome. This chapter excludes consideration of these influences to focus particularly on corporate strategy and the development of robust Internet governance models that deliver the greatest business opportunities.

In addition, the capacity for rulemaking determines business opportunity. Where there is little government intervention and a new regulatory economy under construction, there is opportunity for commercial advantage.

### **History - cosmocrats gather round**

To put the data in context, it is necessary to quickly back-track through some general Internet history. Hafner, Berners-Lee & Reid trace the gestation, birth and early years of the Internet. Quick references can also be found to the technical history of the development of the DNS and Internet Protocols at <http://www.nic.at/english/rfcs.html>.

In the context of this chapter though “. . .the management of the Domain Name System offers a kind of microcosm of issues now frequently associated with the overall management of the Internet’s operation and evolution. . . .It is helpful to consider separately [and then ICANN’s role] the problem of managing the domain name space and the Internet address space. . . . Domain names have semantics that numbers may not imply; and thus a means of determining who can use what names is needed...” (Cerf & Kahn 1999: 6).

Most particularly, I am interested in the culture of “expert volunteerism” which is evident from the data. The culture of volunteerism is not new to the Internet, illustrated by the system of delegation of responsibility for portions of Internet architecture started by Dr Postel.

The added interest here is that now the volunteerism is done to determine, in large part, advantageous commercial outcomes.

Driven in part by the Clinton Administration *Framework* and the ensuing discussion papers, the corporate sector, particularly in California’s Silicon Valley, saw the opportunity presented by more commercial arrangements for using Internet resources. In 1999, Cerf and Kahn added that “. . . .Other political and social dimensions that enabled the Internet to come into existence and flourish are just as important as the technology upon which it is based.” (Cerf & Kahn 1999: 4) There were significant political and social dimensions such data privacy, universal service obligations, access costs, civil society and governance.

The official United States view was that “ICANN has been designated by the US Government to serve as the global consensus entity to which the US Government is transferring

the responsibility for co-ordinating the management of the DNS, the allocation of IP address space, the assignment of protocol parameters, and the management of the root server system.” All this was to be achieved in the context of the broader political and social dimensions which Cerf and Kahn referred to in addition to taking into account competing commercial objectives.

Mueller’s work explains “a narrative about how the commercialization of Internet domain names led to the formation of a new international regime for regulation and dispute resolution” (Mueller 2000: 1). The research here tracks the development of ICANN’s mandate, from the US Department of Commerce, to manage the technical aspects of the Internet and the policies and processes that surround that management. The most important feature of this work is tracking the shift from government focused regulation, firmly within the purview of civil servants, to a privatised system, run on a minimal cost-recovery budget, managing consensus-driven input and influence from the private sector as well as balancing the input of governments through the GAC.

It is clear that ICANN is responsible for the coordination and control of the technical protocols of the Internet. It manages the Internet address space, the DNS and the Internet root server<sup>213</sup>. In practice, the most complex portion of ICANN’s work has been to balance policy and politics with sound technical management with input from myriad competing voices.

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<sup>213</sup> See [www.icann.org](http://www.icann.org) for the formal statement of ICANN’s responsibilities.



ICANN is a case study of new economy regulation, a hybrid of international regulation and corporate influence that has no precedent.

On July 1, 1997, as part of the *Framework* discussions, the President directed the Secretary of Commerce to privatise the management of DNS in a manner that increased competition and facilitated international participation in its management. This chapter focuses on one area of the mission to “. . . Collaborate on the design, development, and testing of appropriate membership mechanisms that foster accountability to and representation of the global and functional diversity of the Internet and its users, within the structure of the private-sector DNS management organisation”<sup>214</sup>. There are two separate concepts here. The formulation of appropriately representative membership structures (mechanisms for policymaking) and the creation of an organisation responsible for the implementation of those policies (a management organisation). The conflation of two different concepts has, from the start made implementation of any scheme of global representation difficult<sup>215</sup>. In addition, inadequate attention has been paid to regulatory quality control issues such as investigation, compliance and enforcement and penalties beyond contractual arrangements. These contractual arrangements are separate from regulatory arrangements.

Coupled with the identification of commercial opportunity, was the understanding that the Internet would be governed, in the broadest sense, on a user pays basis.

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<sup>214</sup> This document is found in full in the Supplementary Material. See page 1.

<sup>215</sup> Refer to the ICANN At Large Membership web page for further details.

This user pays, industry self-regulatory model is now manifest in the structure of ICANN where members of the various constituencies are charged a fee to recoup some of the expenses that ICANN incurs. “. . .ICANN constituents benefiting from ICANN’s technical coordination and policy development activities should contribute to its budget, whether individually or through intermediary fee aggregating organizations”<sup>216</sup>.

In summary, ICANN is “dedicated to preserving the operational stability of the Internet; to promoting competition; to achieving broad representation of global Internet communities; and to developing policy through private-sector, bottom-up, consensus-based means. ICANN welcomes the participation of any interested Internet user, business or organization”<sup>217</sup>.

The impact of ICANN on the development of multi-jurisdictional, non-governmental policymaking and dispute resolution mechanisms is centred around “two principal issues: how to support centrally administered Internet functions including name and number management, and secondly, how to allocate international name space.” (Kahin 1996: 1). The added complication is how to allocate the commercial benefit derived from the public governance of privately held resources which are now firmly in the public domain.

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<sup>216</sup> ICANN Task Force on Funding, Draft Final Report, 30 October 1999, p 2.

<sup>217</sup> See further at <http://www.icann.org>

## **Regulatory Costs: Who pays and what do they get?**

The DNRI is the core of the consumer usability of the Internet as it provides domain names and other related web-based services such as hosting, website design and domain name portfolio management. The DNRI is also critical to the operation of ICANN. The analysis here is limited to those registrars which are ICANN accredited<sup>218</sup> and those registries that have contracts with ICANN to provide registry services.<sup>219</sup>

I will first examine registry operators. An Internet domain name registry is an entity that receives DNS information from domain name registrars, inserts that information into a central database and propagates that information into Internet zone files on the Internet. This functionality enables domain names to be found by users around the world via applications such as the World Wide Web and e-mail. Registries are run on both commercial and not-for-profit models.

Verisign<sup>220</sup> is the largest commercial registry, operating the .com and .net registries. The Internet Society now runs the .org registry<sup>221</sup>. New commercial gTLD registry operators include Registry Pro<sup>222</sup> which offers .pro registrations;

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<sup>218</sup> Found at <http://www.icann.org/registrars/>.

<sup>219</sup> Found at <http://www.gtldregistries.org/aboutus.html>.

<sup>220</sup> <http://www.verisign-grs.com/registrar/>.

<sup>221</sup> <http://www.pir.org/>.

<sup>222</sup> <http://www.registrypro.com/>.

NeuLevel<sup>223</sup> which manages the .biz gTLD; Afilias<sup>224</sup> which operates .info and Global Name Registry which runs .name<sup>225</sup>. New not-for-profit gTLD registries include .museum which is run by MuseDoma<sup>226</sup>, .coop<sup>227</sup> which is used for co-operatives around the world, .aero<sup>228</sup> for the aviation industry.

These registries have approximately 30,054,723 names held in them according to the 2003 *State of the Domain* (SOTD)<sup>229</sup> which holds the key details of each of the registries and updates that information regularly. The market share across registrars for these names is also broken down in SOTD statistics. If the 30,054,723 names were worth an average of \$10 each to the registrar to renew the name, then the baseline industry worth would be \$300,547,230, separate from any other business valuation of equipment and services. This analysis, however, is too simplistic as the zone file is shrinking as names are deleted or expire and the number of new names is declining. This is despite the addition of new gTLDs which have, in the early stages, had a minimal impact on the size of the zone file.

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<sup>223</sup> <http://www.neulevel.biz/>.

<sup>224</sup> [http://www.afilias.info/gateway/index\\_html](http://www.afilias.info/gateway/index_html).

<sup>225</sup> <http://www.gnr.name/>.

<sup>226</sup> <http://www.nic.museum/>.

<sup>227</sup> <http://www.nic.coop/about.asp>.

<sup>228</sup> <http://www.nic.aero/>.

<sup>229</sup> <https://www.sotd.info/sotd/SubscriptionReports.aspx?sub=0&selection=1>.  
The statistics are compiled using publicly available WHOIS data from the domain name system registries.

Framing the market size of the registries is also important in understanding the impact of corporate strategy on the development of regulatory models to manage global registry and registrar businesses. Over the life of the research for this chapter, from November 1998 to November 2001, an additional seven gTLD registries were chosen, had contracts signed for the provision of services and partially activated so that registrants could buy the new names. During this period, the April 2000 NASDAQ market crash and subsequent sector wide economic downturn took place.

If domain names are critical to businesses then it is helpful to understand a little more about Internet access and usage rates. In Australia, the Australian Bureau of Statistics<sup>230</sup> and the NOIE<sup>231</sup> provide historical data on Australian use of the Internet. In 1999, "21% of SMEs connected to the Internet were engaged in Internet based sales, and 22% were actively placing orders for goods and services as of February 1999". The 2000 NOIE report<sup>232</sup> provides more detailed analysis of the growing number of ISPs, of secure servers and the cost of bandwidth. Internationally, Australian trends mirror those of the United States, Europe and the UK.

However, the market size and comparisons with other markets only tells half the story. The influence of corporations on regulatory models in DNS governance is more detailed and complex. That complexity is divided into three

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<sup>230</sup> <http://www.abs.gov.au>

<sup>231</sup> [http://www.noie.gov.au/projects/framework/Progress/ie\\_stats/state\\_of\\_play.htm](http://www.noie.gov.au/projects/framework/Progress/ie_stats/state_of_play.htm)

components. The first is membership fees which are levied and paid via a variety of formulas. These are essentially licensing arrangements for the right to provide services. The second is the volunteering of expert services to draft papers, provide input on policy and contribute to drafting. The third is through event sponsorship and hosting functions at ICANN meetings.

To deal with the license fees first. Registrars seeking accreditation to offer gTLD name registration services must follow the ICANN guidelines<sup>233</sup>. This means that they pay

*US\$2,500 non-refundable application fee, to be submitted with application; US\$4,000 for the first TLD, and US\$500 for each additional TLD yearly accreditation fee; US\$70,000 in working capital requirement. . . ICANN requires only that you demonstrate (by submitting an independently verified financial statement) that you have at least this much liquid capital (cash or credit) before your ICANN accreditation becomes effective. . .and Quarterly accreditation fee (variable portion) paid once you begin registering domain names. This fee represents a portion of ICANN's operating costs based partly on your share of overall domain name registrations in the TLDs for which you are accredited, so it will vary depending on your volume of names registered as well as the total volume of all names registered.*

Registrars also have to pay fees to registries. These fees vary for each different gTLD and for each ccTLD depending on the portfolio of names a registrar wants to offer.

Registries have to pay similar license fees to ICANN. In the case of the new gTLDs, these license fees were made up of several components. The first was the non-refundable application fee of US\$50,000 to submit an application to be considered for the round of new gTLDs. This application fee,

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<sup>232</sup>

[http://www.noie.gov.au/projects/framework/Progress/ie\\_stats/StateofPlayNov2000/readiness/readiness\\_6.htm](http://www.noie.gov.au/projects/framework/Progress/ie_stats/StateofPlayNov2000/readiness/readiness_6.htm)

<sup>233</sup> <http://www.icann.org/registrars/accreditation-financials.htm>

paid to ICANN, was non-refundable and did not include any of the other costs associated with collating the formal application.<sup>234</sup> Under Network Solution's (NSI) 1999 agreement with ICANN, NSI was required to pay a \$US250,000 fee.<sup>235</sup> According to ICANN's proposed budget papers for Fiscal Year 2000-2001<sup>236</sup>, a total of US\$4,314,000 was identified as revenue from the mix of all gTLD registries, registrars and ccTLD registries. The Transition Budget for Fiscal Year 1999-2000 identified approximately \$US5,000,000 in fees from registries and registrars.<sup>237</sup>

The second portion of the cost of entry is the volunteer time, services and expertise provided by the representatives of various companies. The table at Appendix Two provides a snapshot of some attendance figures over the series of meetings under investigation<sup>238</sup>.

The table was constructed using the publicly available ICANN attendance lists and knowledge of the working groups within, for example, the Registrars' Constituency. Using this data, one can develop an analysis of the volunteer contributions to ICANN's costs<sup>239</sup>. The table includes, where possible, remote and physical attendees. The selected

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<sup>234</sup> <http://www.icann.org/tlds/new-tld-application-instructions-15aug00.htm>.

<sup>235</sup> The 1999 agreement is found at <http://www.icann.org/nsi/nsi-registry-agreement.htm>.

<sup>236</sup> Found at <http://www.icann.org/financials/proposed-budget-04may00.htm>.

<sup>237</sup> Found at <http://www.icann.org/financials/budget-fy99-00-27may99.htm>.

<sup>238</sup> The full table is at Appendix B.

<sup>239</sup> For a light-hearted look at the commitment to the caravan, ICANN commentator Bret Fausett has worked out that if one had travelled from Chicago, Illinois to every ICANN meeting since 1998, one would have flown 272,845 kilometres. <http://icann.blog.us/2003/04/14.html#a1284>.

sample is not randomly chosen but does demonstrate a fair spread of large and small registrars and registries who have participated consistently in many of the meetings.

### **Indicative Participation Costs**

It costs approximately \$US10,000 per week per person for a corporate representative to attend an ICANN meeting. To arrive at this figure, I used a baseline cost of a return business class airfare from Melbourne, Australia, to the various meeting locations. On average, between November 1998 and November 2001, the flight costs are approximately \$US7,000. Hotel and incidental costs bring this total to roughly US\$10,000 per week. In addition, there is the cost of losing key personnel such as chief executive officers, chief technology officers and general counsels for the duration of the meetings. The participation figures indicate that most of the top registrars and registries send between two and fourteen staff per meeting, depending on the location of the meeting and the issues under discussion. Without precise key staff salaries, it is difficult to determine exactly how much staff time is worth. However, judging by the size and consistency of corporate delegations, one can see that the financial commitment by corporations to ICANN is significant.

The final cost is that of sponsorship of ICANN meetings<sup>240</sup>. Sponsorship opportunities have been made available at all ICANN meetings to offset the costs for holding the meetings, to provide an opportunity to showcase business services, to influence a particular outcome and, in the case of

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<sup>240</sup> The most recent ICANN meeting provides up to date costings for sponsorship opportunities which are similar to other meetings.  
<http://www.icannmontreal.ca/en/sponsorship.html>



the new gTLD registries, to convince ICANN registrars to sell their names.

A snapshot of events includes cocktail parties, opening receptions, registrar parties, river cruises and assistance with the cost of hosting the physical meetings<sup>241</sup>. Whilst no figures are publicly available, the locations (such as the Getty Museum in Los Angeles and the Los Angeles Staples Centre for a rock concert) give an indication of potential costs. The costs include entertainment (for example, parties at the Café Opera in Stockholm and the U2 concert in Los Angeles), food and drinks, give-aways such as CD-ROMS and other corporate promotional material.

The expert services provided by registrars and registry staff to develop policy positions are diverse. They range across technical engineering skills; legal and regulatory knowledge; agenda setting and meeting procedures and report writing. Attendance at meetings adds legitimacy to the process. The self-organising constituencies get on with the work at hand to determine consensus policy positions and provide guidance to the Board.

The motivations for volunteers or, more precisely, for companies to provide their employees' services to ICANN are varied. They can be characterized as follows.

Firstly, the chaos theory. As an incumbent guaranteed to lose market share, it is in the interest of incumbent service providers to cause as much distraction and chaos as possible or, at the very least, to ensure that no real progress is made. This is seen in the telecommunications industry where incumbent companies use delaying tactics, fail to interconnect

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<sup>241</sup> <http://www.icann.org/riodejaneiro/#sponsors>

on reasonable terms and conditions or abuse their market dominance. The chaos theory is alive and well in the management of the DNS.

Secondly, there is an element of commitment to the cause of good governance, the establishment of reasonable rules and the implementation of sound policy. This is evidenced in the significant donations of both money and time in the early stages of ICANN's establishment and the genuine efforts of many volunteers to draft documents, to devote hours to teleconference calls (often in the middle of the night) and to provide services which, in other professional circumstances, would be billed at commercial rates.

Thirdly, there is an element of the cosmocracy caravan, of being part of a small and exclusive club, of collecting the t-shirts and frequent flyer miles to different places around the world as part of the ICANN community. Despite often diametrically opposed points of view, there is a definite collegial and cooperative atmosphere at the meetings and during the work that takes place between meetings.

Lastly, participation in ICANN has been commercially critical for many on-line businesses, especially the registrars and registries, as they are the entities which have most directly benefited from and paid for ICANN decisions.

## **Strategic Impact**

With a statement of the assumptions<sup>242</sup> of the work and a brief outline of some key market demographics, I move now

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<sup>242</sup> The three key assumptions are, firstly, that the creation of ICANN actively demonstrates regulation being moved away from governments; secondly that governments still take an active, but peripherally influential, role and thirdly that the private sector is forced to meet the costs from that regulation but it is they who derive the greatest benefit from it.

to understand more fully the impact of corporate involvement in not-for-profit private sector led regulation of critical infrastructure.

There are two key elements to the analysis. Firstly, that technical regulation has political and therefore policy implications. Secondly, that where there are policy implications with direct commercial impact, we can expect to see the vigorous involvement of corporations as they manage the environment in which they do business. This is certainly the case here.

From a political and policy perspective the DNS is highly complex especially because, in the last five years, the commercial attractiveness of on-line enterprise, in its many different forms, has increased. From a technical perspective, it works, like all good technology, with the average end-user not knowing the slightest thing about what happens at the network layer.

However, the network layer is where the mission and mandate of ICANN resides. It is also where different business interests, national political objectives and cultural expectations about the utility of and access to the broader Internet coalesce.

The impact of the Internet and, as a case study, the DNRI illustrates emphatically the way in which regulation of an industry has been globalised. Jayasuriya argues that "...Globalization is reshaping the fixed and firm boundary between domestic and international spheres and changing our conceptions of the proper domain of domestic and international politics and law" (Jayasuriya 1999: 1). This trend is certainly in evidence here.

In the case of the work outlined here, little academic or popular work has been done to quantify the commitment of

corporations to the development of Internet governance models, at either a policy or technical level. The early statistics collected for the research demonstrate significant financial and time commitment and the creation of a new kind of regulatory model.

### **The Cosmocracy Caravan**

The DNRI, in parallel with a regulatory experiment of open DNS governance, remains a work in progress. However, it is now possible to identify a set of factors that have enabled an orderly transition from a monopoly provided service, limited by highly restrictive policy, to a more open market place where opportunity for competition can be identified at several points. These factors include:

- flexible meetings;
- online technology;
- English language;
- skills mix including legal, regulatory and commercial knowledge
- commitment to the Internet as a forum for broader civil society goals<sup>243</sup>

The global domain name industry is a test bed for the development of hybrid regulatory models. Corporations are critical to that development not only because they pay the actual price of regulation but they also provide the staff and expertise to do the work.

Private interest in public standards is nothing new. Examples abound in shipping, weights and measures, clothing

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<sup>243</sup> Tolerated in many cases because it would be perceived as inappropriate to ask the civil society representatives to choose another forum. They seem, though, to have done that by themselves, judging by the participation rates.

sizes and radio spectrum management and allocation. That interest takes on a different dimension with respect to technical standards for the DNS and the influence that has on extremely sensitive commercial outcomes.

The alphabet soup<sup>244</sup> of corporate lobbyists make it their mission to ensure that governments do nothing to impede the environments in which they want to do business and the conditions under which they do that.

Braithwaite and Drahos' term 'webs of influence' is under examination here to assess the impact corporations have on the opportunity to set their own regulatory environments (or, better yet, avoid regulation completely).

Mueller argues that, with respect to the regulatory structure surrounding the management of domain names the "emerging property rights regime in domain names would be shaped primarily by political bargains, and affected disproportionately by bargaining parties that are wealthy, homogenous in outlook, and well organized". (Mueller 2000: 95) In the relevant literature, Reidenberg argues that "network governance vs territory governance" is the phenomenon which shifts most comprehensively the way in which the private sector interacts with governments. (Reidenberg 1997: 96) This is manifest here. Sassen's work on globalisation and influence flows is particularly important with respect to the globalisation of business transactions and corporate responses. In addition to key corporate actors, consumer groups, academics and the broader public are also engaged in DNS governance but not in as great a number of with the same degree of influence.

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<sup>244</sup> For example, AT&T, BT, MPA, MPAA, INTA, ABA, AIPLA and RIAA.

The actual personalities require further work to unpack the skills, attitudes, linguistic background and cultural heritage, all of which have an impact on the way in which ICANN operates. Methodology to refine the meaning of these statistics is under preparation and is the subject of future work. It requires the development of a series of interviews and focus groups on a survey sample of corporate (and other) actors for both individuals and institutions.

### **Decision Making: Why does it matter?**

Control of decision making mechanisms or at least familiarity with the way the system works is critical to corporations wishing to influence regulatory outcomes that enable them to conduct their business with a minimum of limitations. In the ICANN environment, decision making with respect to Internet governance depends on understanding the key policy issues AND the processes by which decisions about those issues are resolved. Control of the process is, in the early stages of “regulatory construction” as important as control of the issue under discussion itself.

The development of ICANN is a model of regulatory change. Mueller has argued, that the technical management of numbers corresponds to the management of highly valuable and easily identifiable names. As such, the regulatory and commercial stakes are high, even if one were only to use NASDAQ company valuations. (Verisign, for example, acquired dominant registrar NSI for over \$US17billion.)

The composition of the Board reflects ICANN’s globalised nature. Very deliberate battles are fought to ensure that non-North American interests are represented in everything from the location of root servers to ensuring that

small South Pacific nations are heard. It is easy to see from the previous tables that those without commercial support, access to US dollars, English as their first language and affordable access to the Internet find it difficult to participate.

The impact of the addition of seven new gTLDs is immense, not only for its commercial impact but for the impetus it has given to ICANN as an institution. ICANN has become the honey-pot around which the bees gathered.

Mueller's work on property rights and institutional innovation is most instructive here. The pressures of commercialisation of the domain name space are the key determinant of institutional development. How much do they outweigh technical stability and redundancy – how far can the system be pushed?

“The meteoric rise of the World Wide Web made the possession of domain names and the business of registering them economically important”. (Mueller 2000: 94) When assessing the value of the domain name space, is the business of registering names important? What is it worth? Mueller estimates something in the order of \$US1billion annually.

What is at issue is not necessarily the monetary value of the sale of domain names, as that is distributed to registrars. What is important is power and control in a newly centralised, public organization that is global in its reach. Because it distributes power and control there are arguments about At-Large representation, about Board membership, about control of policy.

The expansion of the domain name space or to use Kahin's term, the allocation of domain names, has taken much of ICANN's resources. Why? Because the monetary value of the industry is huge. It also demonstrates the power

of a hybrid regulatory body which, because of the gTLD expansion plan, had something to offer its constituents.

The gTLD application process is case in point<sup>245</sup>. Applicants for the new gTLDs had to deposit a non-refundable fee \$US50,000 with ICANN. There are no publicly available figures on the costs developing the bids. Those costs would have included financial advice, marketing expertise and corporate lobbying resources.

This microcosm of ICANN's work demonstrates that it is a highly important organisation both technically and politically. As Kleinwachter argues, "while the formal "recognition" of a registrar is a technical procedure, the issue is a highly economic and political one". (Kleinwachter 2000: 557) This is particularly true in the expansion of gTLDs<sup>246</sup>.

The technology is rapidly developing and highly valuable. The value ascribed to Internet real estate and the money to be made or lost is at direct odds with a cultural environment which has facilitated free and open sharing of information.

As the key governance body in a highly specialised industry where the financial stakes are enormous, ICANN has to manage policy, politics and regulatory function, leaving aside any possible responsibility for achieving desirable social policy objectives like free speech, ubiquitous access and low prices for Internet access.

The growth of ICANN, its charter of operation and key stakeholders are important in understanding the development

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<sup>245</sup> See <http://www.icann.org/tlds>.

<sup>246</sup> Refer to the 16 November 2000 ICANN press release for full details of the gTLD process and successful applicants. <http://www.icann.org/announcements/icann-pr16nov00.html>



of dispute resolution mechanisms in wider electronic marketplaces. This appears unrelated, of course, to ICANN's central technical task of managing the allocation of unique identifying numbers to computers connected to the Internet which just happen to be most readily remembered as unique names.

## **Regulatory Hybridisation**

Börzel and Risse-Kappen's work illustrate some possible regulatory models<sup>247</sup>. The management of the global DNS by a not-for-profit private sector corporation, based in California with a globally representative Board of Directors is a new example of a regulatory agency.

The regulation of the DNS is complicated by a robust Internet tradition of freedom from the binds of government; an historical volunteer approach to the management of resources which have shifted from private to public but non-government hands; the expectations of governments of all persuasions that they would be 'allowed' to have input into the way in which critical infrastructure, even if was principally driven by the USA, was managed and, finally, the corporatisation of the Internet and rapid commercialisation of Internet applications has had a direct bearing on the way in which corporations have created opportunity through change.

The development of deliberate policies of broad consultation, openness and transparency of decision making processes and an underlying commitment to meeting the needs of end-users (or the At-Large community) has meant that, in many cases, ICANN's effectiveness as an efficient

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<sup>247</sup>Börzel & Risse-Kappen 2001: 3,9.

regulatory body has come under attack. However, any measure of ICANN's effectiveness is not at issue here and forms part of other work under development.

There is limited discussion in the academic literature of the role of corporations in the development of regulatory structures that normalise the way in which critical infrastructure is managed. The key concepts which have guided the discussion of the globalisation of regulation and the development of a new regulatory economy are ownership and stewardship; trusteeship and control; legislation and regulation; and national governments versus international governance.

## **Discussion**

This chapter sets out early conclusions on the development of a cosmocracy of control of the DNS and proposes some further work that maps the transition from regulation by personality to the development of robust processes that are far more objective and impervious to personality. The central message of the work is that the application of global regulatory structures provides enormous opportunities for businesses, in particular, major businesses such as brand and content owners and domain name registration businesses, to shape the environment in which they operate. This is particularly the case with respect to Internet governance and the critical network infrastructure upon which the Internet depends.

The fact that Internet access is now ubiquitous in the vast majority of businesses and many businesses depend on the DNS (such as the DNRI) makes consideration of

governance and the withdrawal of the public sector from close regulatory control even more interesting<sup>248</sup>.

Mueller's view focuses on the creation of new "property rights" and the regulatory arbitrage associated with the formation of value, when domain names were not important and when IP addresses, as unique numbers, were all that was necessary to find Internet resources. Kahn and Cerf (1999) explain neatly and simply what used to be the case "In order to work properly, the architecture required a global addressing mechanism (or Internet address) to enable computers on any network to reference and communicate with computers on any other network in the federation. Internet addresses fill essentially the same role as telephone numbers do in telephone networks" (Cerf & Kahn 1999: 3). Of more importance here is that domain names are much more than a simple grouping of letters, as was discussed in Chapter Three.

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<sup>248</sup> Measuring the impact and shape of the information economy has proved contentious. Particular challenges are highlighted in papers from the 1999 *Understanding the Digital Economy: Data, Tools, and Research* conference (at <http://mitpress.mit.edu/books/0262523302/ude.html>), the OECD's *The Economic & Social Impacts of Electronic Commerce: Preliminary Findings & Research Agenda* (at [http://www.oecd.org/subject/e\\_commerce/summary.htm](http://www.oecd.org/subject/e_commerce/summary.htm)) and the US Government's *Measuring the Electronic Economy* (at <http://www.census.gov/eos/www/ebusiness614.htm>).

For national perspectives see studies at the University of Texas (January 2001 *Internet Economy Indicators* report at [http://www.internetindicators.com/jan\\_2001.pdf](http://www.internetindicators.com/jan_2001.pdf)) and Monash University with Allen Consulting (*Built For Business: Australia's Internet Economy*, 2001 report at [http://www.allenconsult.com.au/resources/Cisco\\_summary.pdf](http://www.allenconsult.com.au/resources/Cisco_summary.pdf)) under the auspices of Cisco.

We are on firmer ground with less ambitious measures of teledensity and counts of Internet hosts and domain registrations per capita (for which see the ITU's 2001 ICT at [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/Internet01.pdf](http://www.itu.int/ITU-D/ict/statistics/at_glance/Internet01.pdf) and the OECD's 2002 *Measuring The Information Economy* at <http://www.oecd.org/EN/document/0,,EN-document-29-nodirectorate-no-1-35663-29,00.html>) or Australian Bureau of Statistics estimates regarding the size of the online population and business use - *Business Use of Information Technology* - <http://www.abs.gov.au/Ausstats/abs%40.nsf/b06660592430724fca2568b5007b8619/9c7742890adec989ca2568a900139423> OpenDocument and *Internet Activity* <http://www.abs.gov.au/Ausstats/abs%40.nsf/e8ae5488b598839cca25682000131612/6445f12663006b83ca256a150079564d>).

## **Fiscal Impossibilities: Who controls the purse strings?**

There is no doubt that ICANN has had considerable budgetary limitations which have inhibited its ability to conduct the work it needs to. It is interesting to review the Budget discussion material on the ICANN website such as the report of President's Task Force on Funding<sup>249</sup>. The report identifies

*ICANN's need for a degree of budgetary flexibility in light of the unreliability of ICANN's current budget figures, attributable to ICANN's young age, limited experience with the actual costs and expenses entailed in its policymaking and consensus-development activities, and to the lack of steady income from registry or registrar sources*

*Other factors contributing to budget volatility include ICANN's inability thus far to rely on agreements for payments from registries and registrars, delays in hiring staff, and reliance on short term loans to meet working capital requirements. Taken together, these factors counsel against an overly rigid approach to budgeting, and in favor of some flexibility for year-to-year adjustments up or down based on operational experience, if coupled with an inclusive and transparent consultative process.*

According to Crew, in addition to the Board's tasks of ensuring the stability of the Internet and introducing competition into domain name services (in which there is inherent tension), the Board was to ". . . identify a source of funds . . . it was necessary to quickly establish credibility and a degree of acceptance by the Internet community, and thereby make ICANN a credible organization". (Crew 2000: 25)

To this end, the ICANN Task Force on Funding (TFF) released its draft Final Report on 30 October 1999. The TFF examined ways in which a robust budget could be developed, recognising that the creation of a large bureaucracy was

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<sup>249</sup> <http://www.icann.org/committees/tff/final-report-draft-30oct99.htm#3A>.

unlikely to garner any support in addition to understanding that there had to be a minimum amount of money in the treasury to perform the most basic of regulatory functions.

The recommended allocating of funding responsibility has been spread amongst “three major groupings of (i) IP address registries, (ii) domain name registries, and (iii) domain name registrars on a proportional basis. . . .55% to gTLD registrars and registry, 35% to ccTLD registries, and 10% to IP address registries. Within each funding community, fair and proportional formulas will be developed...”.<sup>250</sup>

The TFF stated clearly that a controlled budget was also one way of controlling mission creep. “The philosophical basis for limiting ICANN’s budget is rooted in the notion that ICANN is a limited-purpose technical co-ordination entity; however, ICANN is likely to come under pressure to expand its reach into areas outside its narrow mandate. Controls on ICANN’s budget are an important safeguard against ‘mission creep’ and the unrestrained budget bloat that might enable it”. (ICANN 1999: 7)

In hindsight, seed funding should perhaps have been provided by all comers, in trust in a foundation as a transitional arrangement (beyond the reliance on donations and generous creditors). Kahin had other ideas in his 1995 paper which may have worked just as well. This is even though “. . . ICANN’s mandate is to accomplish private-sector funding. At the same time, ICANN staff observed that ICANN will gladly accept contributions from any legitimate source, including governments” (ICANN 1999: 14).

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<sup>250</sup> See the full Task Force on Funding Report at <http://www.icann.org/>.

The November 2000 ICANN staff paper, *Cost Recovery Structure for Domain Name Registries*, is also important. The most important feature, for the purposes of tracking influence drift and the construction of new structures for governance, is as follows.

*. . .the goals of the revenue structure may be stated as,*

*To produce the funding necessary to support ICANN's mission and programs*

*To allocate fairly the responsibility for providing that funding*

*To develop a cost recovery, i.e., revenue, structure that is understandable and that can be administered without excessive costs. . .*

There are two main causes of delays in implementing what seems to be a straightforward structure. The completion of negotiations with the many country code domain name registry organisations and the impact of the implementation of the new gTLDs. In the former, the ccTLD managers want a larger piece of the power for their money. The latter is an ongoing process.

The budgetary process for the funding of .auDA has mirrored that of ICANN and enables easy identification of the impact of deliberate budgetary constraints. The dominant monopoly player (MelbourneIT) fought long and hard to avoid paying .auDA its contribution in much the same as Verisign did with respect to ICANN. This is not, however, surprising, given that the main purpose of both .auDA and ICANN is to break monopoly control on the registration of domain names. It is in Verisign interests to make payment of ICANN's invoices as long and drawn out a process as possible. The same is true in the Australian case of MelbourneIT and .auDA. The process can also be seen extracting Telstra's contributions to self-regulatory efforts in Australia's

telecommunications industry. The strategy is to take a long time to pay and cripple an organisation set up with the express purpose of breaking a lucrative monopoly.

One of the most pressing problems of ICANN's budgetary processes is that there isn't an effective mechanism for enforcing collection of funds. Whether this will change in any effort to reform ICANN's operations remains to be seen.

## **Conclusions**

The chapter demonstrates, in a preliminary way, the tensions between governments, regulators and the private sector as the globalisation of business transactions increases in volume and value particularly in the domain names and numbers industry. The research draws some early conclusions on the "influence drift" to global regulators from national legislatures in the realm of digital transactions as issues of sovereignty loss take effect.

"Years ago, nations created the Law of the Sea to govern valuable ocean resources. Similarly, ICANN is now creating a "Law of the Internet" via its contracts" (Livingston 2000: 1).

The model for global DNS governance is still under construction. I believe we can expect to see, most critically, a devolution of the power of personalities and an increase in the status and effectiveness of regulatory process. The opportunity for regulatory arbitrage through the use of personalities and personal connections will decline as more robust procedures, and objective measure of success, are gradually bedded down. In the meantime, the shifting plates of regulatory influence have created a markedly different governance landscape for the management of the DNS.

One could expect that ICANN as an institution will settle, particularly as efforts to reform and refine its operations are now under way, as influence accretes around its ability to choose the process for the selection of policy topics, the creation of policy and the implementation of those policies in a timely way.

The new gTLD issue, more than any other in ICANN's short history, acts as the catalyst for demonstrable change. As Mueller argues, ". . . Institutional innovation was the product of necessity, not choice, and of conflict and controversy rather than consensus and harmony" (Mueller 2000b: 13).

I turn now to a discussion of DNS governance within national jurisdiction and how approaches to that governance map with the globally application principles derived from ICANN. I identify though that there are different ways of approaching national DNS governance and the model adopted in Australia illustrates one possible permutation.





## **CHAPTER SEVEN - INTERNET GOVERNANCE IN AUSTRALIA: MODELLING SELF-REGULATORY STRUCTURES IN THE DOMAIN NAME SYSTEM<sup>251</sup>**

### **Introduction**

This chapter sets out the development of Internet governance in Australia. It describes the history of the administration of the .au country code and the formation of the private sector not-for-profit regulatory organisation responsible for the ongoing management of .au. It also gives some commentary on particular aspects of the establishment of new models for managing the technical resources of the global DNS in the context of national jurisdiction.

The individuals in these developments are important – especially where personalities, rather than processes, have governed many of the regulatory outcomes. Some time is spent examining the input of the classic Postel ‘apostle, the Federal Government Minister and his views, the contribution of active consumer representatives and technical experts. Regulatory volunteers, from both the corporate and public sector, are well in evidence. They have played a critical role in developing consensus-driven policy now implemented by a not-for-profit regulatory organisation in a highly competitive market place.

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<sup>251</sup> This chapter is to appear in the Murdoch University Law School Journal <http://www.murdoch.edu.au/elaw/> July 2003 issue.

There are direct parallels to developments that have occurred at the international level. The Australian process has been more disciplined, more time-bound and more capable of managing distractions than the experience of ICANN.

## **Background**

The work here is a case study of how complex and multifaceted DNS governance has become in a national context. The .au domain name space provides an illustration of the evolution of geographic<sup>252</sup> top level DNS governance at a critical point, at an international level, in the development of ICANN. The evolution of the .au domain name space is instructive in understanding the impact of hybridisation of regulation on a global scale.

This discussion is important because it demonstrates a considerable shift in thinking about a technical resource to a naming system which has a policy and political life outside of its technical function. In addition, whilst it is not discussed in detail here, intellectual property protection advocates (both owners of IP® and their lawyers) have done much to ensure that domain naming was included in the portfolio of IP® protection. As discussed in Chapter Three, domain names are another dimension of branding and trademarks, for which protection and preferential policy treatment have been hard fought. This fight has had substantial political and

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<sup>252</sup> Whilst I have used the common 'country code' top level domain (ccTLD) throughout the text, the term 'geographic' top level domain better defines the difference between those two letter characters which are used to identify countries and those which are used to identify generic top level domains (gTLDs) such as .com, .net and .org. The term country code is not particularly accurate when some country codes are used for territories, for example, in the case of .cx for Christmas Island or when some have been re-purposed for completely commercial use, for example, in the case of .tv or when the control of a country code has been ceded, for example, in the case of .nu, to entities with no real connection to the country. The IANA website holds the definitive list of geographic top level domains at <http://www.iana.org>.

commercial implications beyond considerations of the technical capacity of the numbering system.

The historical context for consideration of the Australian approach to DNS governance recognises that “Jon Postel used the ISO3166 code ... based on a United Nations register o[f] ... 243 ‘recognised territories’ and asked individuals or academic institutions to overtake the responsibility for the management of the ccTLD ... No governments have been involved in the definition of ccTLDs and the operations of the relevant registrars started without any legal foundations in the ‘territories’<sup>253</sup>.

Until the formal re-delegation of the .au space to .auDA in September 2001, University of Melbourne staff member Robert Elz<sup>254</sup> was the ICANN/IANA delegate. In 1996, the domain name management function for .com.au (which had outgrown Elz’ capacity to manage as a volunteer) was transferred to MelbourneIT as part of an arrangement with the University of Melbourne.<sup>255</sup>

Others, in cooperation with Elz, managed closed domains (in that only those within particular organisations could register names within the domain) such as .csiro<sup>256</sup> and

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<sup>253</sup> Kleinwachter 2000: 559.

<sup>254</sup> Elz’s contribution to Internet governance in Australia is considerable. See <http://www.networksorcery.com/enp/authors/ElzRobert.htm> for his technical work. Recognition of Elz by ICANN is at <http://www.cyber.law.harvard.edu/icann/montevideo/archive/res/elz.html>. Some anecdotal information is at <http://www.peterpoole.info/files/ping.html> and more formal treatment is at <http://www.lib.unimelb.edu.au/collections/media/internet.ppt>.

<sup>255</sup> .net.au was managed by connect.com (<http://www.connect.com.au>). The Age article at <http://www.theage.com.au/articles/2002/07/06/1025667076935.html> highlights the transition to a competitive market place.

<sup>256</sup> The 2LD, managed by the Commonwealth Scientific & Industrial Research Organisation (CSIRO), which is used to identify its national network of laboratories and other entities. <http://www.csiro.au>.

.edu<sup>257</sup> and the open domain .id.au. Information on other closed 2LDs such as .asn.au, .gov.au and .org.au can be found on the .auDA website<sup>258</sup>.

The most immediate impact of the decision to re-delegate the responsibility for .au, after the earlier transfer to MelbourneIT, was to separate the registry function (performed by AusRegistry in the new competitive regime) and registrar functions (now performed by a variety of domain name registration businesses). This achieved two goals similar to those set for ICANN which were the introduction of competition into the provision of registrar services<sup>259</sup> and the opportunity to conduct an open and competitive tender process<sup>260</sup> for the management of the registry.

The evolution of the domain name market continues, in parallel with a regulatory experiment of open DNS governance at an international level. However, it is now possible to identify a set of factors that have enabled an orderly transition from a monopoly provided service, limited

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<sup>257</sup> Geoff Huston's considerable body of work can be found at <http://www.potaroo.net/papers.html>. Most interesting is the 1996 reference to the *Internet in Australia* and other work in the RFC series.

<sup>258</sup> <http://www.ada.org.au/register/>. Inactive 2LDs of historical interest include .telememo.au, otc.au and gw.au.

<sup>259</sup> The applications for accreditation as an .au registrar were assessed on a series of objective criteria such as technical capability and financial capacity. Registrars must abide by a series of contractual obligations and must comply with the mandatory Registrar's Code of Practice.

<sup>260</sup> The tender documentation is found at <http://www.ada/prg/ai/about/news/2001102201.html>. Five companies – from Australia and overseas – submitted bids to provide registry services. The AusRegistry tender and the subsequent contract to provide registry services have clearly articulated policies, rules and service quality standards. This has improved the integrity of the data in the registry, secured that data, increased technical reliability standards and, most importantly, underpins the legitimacy of the management of the .au space by .auDA.

by a highly restrictive name registration policy and, more fundamentally, by uncertainty about policy rules and mechanisms for representation of community views. In contrast, there are now clear methods in place to resolve a wide range of potential disputes, for example, with respect to registrar conduct, to the activities of re-sellers, to anti-competitive conduct and the failure to meet suitable technical standards.

The domain name industry in Australia has become a test bed for the development of a hybrid regulatory model. This model includes industry, consumer groups, the broader public and more traditional regulatory agencies engaging in open governance. Active involvement from the Government and legal practitioners, an outspoken and technically savvy Internet community and an influential public have created an environment which recognises the way in which the DNS has, historically, been managed and which has moved the industry to a more predictable and objective regulatory footing.

Other country code administrators, such as those in the Pacific and members of the Asia Pacific Networking Group (APNG) now look to Australia for guidance on sound practices to manage their domain name space.

The broader research seeks to understand some thinking which frames the development of hybrid regulatory models. The equations of sovereignty versus stewardship; ownership versus trusteeship; national governments versus international governance and the commercial versus non-commercial use of Internet resources are as relevant in the Australian context as they are internationally. Balancing these, in the context of DNS governance, remains a challenge to orderly and technically sound management of critical

network resources, where the benefits of a globally connected network are only as good as the weakest link.

Extra impetus was given to domestic developments by external pressure from ICANN to sign its ccTLD contract and to achieve the re-delegation of the .au domain. At the same time, ICANN was trying to sign agreements with new open gTLDs such as .biz, .info, .name and .pro and new closed gTLDs such as .coop, .museum and .aero. This “signing up” process is discussed later in the chapter. It was seen as a way to bolster ICANN’s legitimacy and mandate to manage the DNS on an international basis.

This chapter also includes some objective measures of success of the transition to a private sector regulatory solution. These include policy development procedures that are inclusive, open and highly sophisticated methods of achieving consensus (or at least tolerant acceptance of reasonable market constraints). Licensing and tendering processes are open and, in terms of the number and quality of participants, highly competitive. The total number of active market players has increased dramatically and, perhaps the best measure of all, prices for domain names for end-users have plummeted.<sup>261</sup>

## **Scope and Definitions**

On the NOIE website, a domain name as defined “... a means of identifying and locating an organisation or other entity on the Internet. Domain names ... are a scarce resource which need to be managed to ensure the efficient allocation of

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<sup>261</sup> An indication of competition as of February 2003 is provided in the price comparison at <http://www.whatsinaname.com.au/>, with registrations from some registrars priced at around 50% of those from their competitors.

web addresses”<sup>262</sup>. The definition recognised, consistent with international practices, that domain name is hierarchical and often conveys information about the type of entity using the domain. Domain names at the same level of a particular hierarchy must be unique; for example there can only be one ‘smiths.com.au’ domain within the .com.au space.

The Australian domain name industry includes entities engaged in the provision of domain name registration services such registry operators, registrars and their resellers, and dispute resolution providers. The prohibition of a secondary resale market for .au domain names means that, in contrast to some other countries, the Australian industry does not feature domain name auction and domain name valuation businesses.

Understanding what domain names are and why they are important to individuals and businesses is critical to placing the discussion here in a realistic, usable context. The discussion in Chapter Three identified that domain names are critical as navigation tools on the Internet, critical to brand identification and critical to the utility of Internet resources. In addition, domain names have an intrinsic ‘navigation’ value. Without a domain name, finding resources on the Internet is highly problematic and relies upon remembering the base IP address as a number string rather than the more memorable name it matches.

As a product or service, the registration of domain names as a business in itself is attractive enough, in the

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<sup>262</sup> NOIE’s website is found at <http://www.noie.gov.au>. Arguments about the scarcity of domain names have served two purposes, to drive the price of domain names up and to invoke fear within the commercial community that their name may not be available, thus encouraging defensive registration strategies. Further discussion of the purported scarcity of names is found at <http://www.tbm.tudelft.nl/webstaf/henrikr/MaastrichtPaper.pdf>.



Australian context alone, for eighteen companies<sup>263</sup> to offer registrar services. This does not include over 1,000, or more, resellers who act on behalf of registrars to sell domain name registrations.

In Australia, as in most other countries where Internet access is cheap and almost universal, domain names have also become part of the lexicon and roadmap of everyday life. One increasingly hears reference to a website (the domain name) in addition to a phone number. The appearance of domain names on the sides of buses, in media advertisements and in correspondence is now so frequent as to be unremarkable. Most major Australian corporations have domain names and use their websites to provide information to the public, to sell goods and services or to advertise a physical presence.

There is little in the academic literature about the development of DNS governance in Australia. There have been press articles about the delegation of the .au country code and particularly about the transition from Elz<sup>264</sup> to .auDA. There is much about intellectual property disputes or who has the right to use a domain name; much about privacy, censorship and the use of on-line information; and much about network security but a paucity of scholarly writing about DNS policy and its implementation in Australia.

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<sup>263</sup> These are identified at <http://www.ada.org.au/registrars>.

<sup>264</sup> Interesting and quite emotional commentary can be found at <http://www.ada.org.au/list/dns/archive/112001/0073.html>. Other background material can be found at <http://www.ada.org.au/list/dns/archive/112001/0031.html>, <http://www.ada.org.au/list/dns/archive/112001/0063.html> and <http://www.lib.unimelb.edu.au/collections/media/internet.ppt>

This chapter is a contribution to analysis of the .au regime from a policy and regulatory perspective. It examines the development of policy for the management of the Australian country code, the legislative basis for that management and the practical co-regulatory approach now in operation. It briefly examines the way in which those three aspects parallel international practices for self-regulatory models in general and with ICANN<sup>265</sup> principles in particular.

The industry has, over the last five years, experienced immense change. Those changes include a technology boom and subsequent bust, a change in personalities and focus, a commoditisation of domain names<sup>266</sup>, the normalisation of online demographics and a contraction of speculative online activity which soaked up enormous amounts of venture capital but delivered little profit. At the same time the need for new Internet addresses exploded as various common devices, including mobile phones, household appliances and motor vehicles can be connected to the Internet.

## **The Market Landscape**

It is important to frame the market context of the Internet in Australia. Again, we focus here on the usage of the underlying technical resources that enable the broader Internet to function effectively. O'Donnell's<sup>267</sup> work on mapping money flows around the Internet is useful but his

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<sup>265</sup> It is worth reading the early Memorandum of Understanding between the DoC and ICANN in the context of regulatory arrangements which developed in Australia. See Section F – Supplementary Material – at the back of the document.

<sup>266</sup> This trend is principally evident in a great reduction in the price of domain names and the widespread acquisition of .au names by businesses, non-commercial entities and individuals.

<sup>267</sup> O'Donnell, 2002.

definition of the Internet is limited to the application and network providers such as ISPs and backbone suppliers.

More useful here is an understanding of the money and influence flows around the domain name industry itself and the impact that the regulation of the network layer has on the way in which the industry operates commercially. Mapping influence flows and framing the demographics of the global cosmocracy is part of the research in Chapters Five and Six.

Internationally, the market context for this academic work is framed by the domain name industry's rapid maturity through the 1990s and the broader dot com boom which drove share prices for online companies to stratospheric heights before a sustained crash in late 1999 and through 2000<sup>268</sup>.

Domestically, there was a significant push towards making the .au space more commercial in its operation and more transparent in its regulatory management. From late 2000 onwards, the .au management was re-delegated to the Australian Government<sup>269</sup> endorsed self-regulatory body,

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<sup>268</sup> Comprehensive global data on the numbers of domain names at the gTLD level, the number and ranking of registrars and the allocation of market share can be found at State of the Domain (<http://www.sotd.info>).

<sup>269</sup> The Department of Communications, Information Technology and the Arts (DCITA) has official policy responsibility for the oversight of electronic addressing in Australia. The policy is given effect through bodies such as the National Office for the Information Economy (NOIE) and Australian Communications Authority (ACA). The Commonwealth Government's view is expressed at [http://www.dcita.gov.au/Article/0,,0\\_1-2\\_3-4\\_107024,00.html](http://www.dcita.gov.au/Article/0,,0_1-2_3-4_107024,00.html).

A perspective on ccTLD re-delegation is provided by Hagen and von Arx, in their "Patriation of the .ca" article. Further work on the role of ccTLD managers and their interactions with governments is taking place within the framework of ICANN's proposed ccNSO (<http://www.icann.org/general/support-orgs.htm>) and within the ITU (<http://www.itu.int/ITU-T/worksem/cctld/index.html>).

.auDA<sup>270</sup>. The policy and political significance of the re-delegation of the .au country code is also found here.

The most recent statistics for the .au registry are provided below. They give a snapshot of how many .au names are registered, in which parts of the domain. The auDA generic names auction is also a useful benchmark of both the popularity and utility of domain names in the .au space.<sup>271</sup> Quoting .auDA's 1 October 2002 press release on generic names, "1,612 generic names were allocated, either to a single eligible applicant or at auction. The highest price paid for a generic name was \$153,000 for flowers.com.au. The median auction price was \$2,900. Most names were allocated for the minimum reserve price of \$100. The process raised approximately \$2,611,000 in total ...".

In very bald and unscientific terms, one could read these windfall figures as equating to approximately 10% of the total cost of current .au registrations. This assumes that there are approximately 300,000 names in the .au registry and that registrars charge approximately \$100 for a two year registration.

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<sup>270</sup> The .au Domain Administration's website ([www.ada.org](http://www.ada.org)) holds a comprehensive listing of policies, procedures, Board minutes and correspondence, regulatory codes and consumer information.

"A domain name (or web address) is a means of identifying and locating an organisation or other entity on the Internet. Domain names, like telephone numbering, are a scarce resource which need to be managed to ensure the efficient allocation of web addresses. [au Domain Administration Ltd \(auDA\)](http://www.ada.org) is responsible for the management and registration of domain names in Australia. The Australian Government, through the [National Office for the Information Economy \(NOIE\)](http://www.noie.gov.au), maintains a cooperative relationship with auDA, and has observer status on the auDA Board, however does not obstruct in auDA's function as a not-for-profit, industry self-regulatory body." More information can be found at <http://www.noie.gov.au/projects/international/index.htm>. A copy of the Minister's formal endorsement of .auDA can be found at [http://www.ada.org.au/docs/Endorse\\_Letter\\_Final.html](http://www.ada.org.au/docs/Endorse_Letter_Final.html).

<sup>271</sup> <http://www.ada.org.au/about/news/2002100102.html>

Broader statistics on Internet usage and penetration can be found in a variety of sources.<sup>272</sup> Most notable is that the Australian DNRI is itself developing rapidly, This follows the international trend where domain name registrations have become very price sensitive, commodity items. The use of the Internet as an information resource, as a mechanism for making consumer purchases and as a branding tool has grown significantly in the last five years, in spite of the significant economic downturn. This means that the development of mechanisms to properly manage and regulate the underlying network resources has moved from the realm of a desirable public policy objective to a critical infrastructure question which must be addressed in a sophisticated and robust manner.

The Internet in Australia is approaching the ubiquity and importance of the telephone. The sophistication of telecommunications regulation compared to that of the governance of Internet architecture illustrates significant progress has been made but that Australia still has some way to go.

Historic Australian Network Information Centre (AUNIC) data can be found at <http://www.aunic.net/changes.html>. As an indication of growth in the .au space, in 2001 there were approximately 257,000 names in the registry. That equates to 229,339 in .com.au, 17,383 in .org.au and 7,841 in .net.au. The most up to date figures for .au can now be

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<sup>272</sup> Figures on uptake of the Internet by Australian households and businesses (including basic connectivity, hosts per capita, frequency of online sessions and aggregate hours online) are available on the Australian Bureau of Statistics site at <http://www.abs.gov.au>. For international comparisons see the ITU 2001 ICT figures at [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/Internet01.pdf](http://www.itu.int/ITU-D/ict/statistics/at_glance/Internet01.pdf) and the OECD 2002 *Measuring The Information Economy* study at <http://www.oecd.org/EN/document/0,,EN-document-29-nodirectorate-no-1-35663-29,00.html>.

found at <http://www.ausregistry.com.au/reports/index.php>. 2003 figures show that there 316,526 names in the registry which is distributed as 283,574 in .com.au, 11,498 in .org.au and 16,508 in .net.au.<sup>273</sup>

### **Rafferty's Rules: Australia's rough consensus and running code<sup>274</sup>**

The disarray and disappointment of previous attempts at self-regulation<sup>275</sup>, restrictive domain name registration policies and the demand from the competition regulator that yet another monopoly be broken, have resulted in a structure which, it could be argued, is heading in the right direction.

Indicators of regulatory success by .auDA include the respect of those subject to regulation, that the industry participates actively in regulatory decision making and tolerates the outcomes. Elz made much of the necessity for support from the diverse Internet community (which was never properly defined) and, in the transition phase, argued that .auDA did not have the support of that group. The construction of effective measures to incorporate the views of the broader user/consumer community is a positive sign illustrated by the development and successful operation of a number of .auDA policy panels which are constituted from a wide range of interest groups. More broadly, compliance with

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<sup>273</sup> These figures are drawn from the (former) AUNIC registry and from data supplied by AusRegistry (<http://www.ausregistry.com.au>), concentrating on the major 'commercial' 2LDs.

<sup>274</sup> Zittrain, in his review of Mueller's *Ruling the Root*, echoes Dave Clark in referring to "rough consensus and running code" (2002: 1) by way of explanation for the manner in which, in the early days, the computing scientists ran the DNS.

<sup>275</sup> The .auDA website holds archived information at <http://www.auda.org.au/archive/adna>.

legislative requirements such as the *Corporations Law* and the *Trade Practices Act* is now apparently accepted. Perhaps less well defined is a commitment to the principles of openness and transparency of decision making which have guided Internet governance at an international level and which are intrinsic to the way in which ICANN is meant to operate. Whether those two principles actually make for better decisions, more efficient governance and more effective management remains moot.

Prior to the formation of .auDA and the formalisation of self-regulatory structures with clear rules and objectives, there was little formal governance of the DNS. That is not to say that there wasn't a clear commitment by knowledgeable and very enthusiastic volunteers to the work of ensuring that Australia's part of the Internet architecture worked effectively.<sup>276</sup>

As mentioned above, Robert Elz was the delegate responsible for the IANA<sup>277</sup> functions in Australia and worked with others on what became AARNet, linking universities and research bodies.

Elz' trusteeship of the DNS for .au space, in particular his development and administration of policy for .au domain name registration, was not the result of appointment by the Commonwealth Government or by Australia's (then)

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<sup>276</sup> MelbourneIT's Chief Technology Officer, Bruce Tonkin, provides some interesting commentary on 'volunteerism' at <http://www.auda.org.au/list/dns/archive/112001/0132.html>

<sup>277</sup> A full list of the functions of the Internet Assigned Names Authority is found at <http://www.iana.org/>. The most important of the IANA functions is to ensure that the country code top level domains are managed in a robust and consistent manner around the world. This includes ensuring that the country administrators conduct themselves effectively...delegations, and the tensions surrounding re-delegations are critical. Close relationship to ICANN and policy functions.

monopoly telecommunications carrier. Instead, as in other countries, responsibility reflected the delegation from one wizard<sup>278</sup> to another in a network managed by a small group of engineers, often with close personal links, but with no commercial interests in what they were doing.

A comprehensive public policy framework didn't underpin delegation. Indeed it predates by several years the publication of the key RFC on ccTLD delegations. Equally important, given the shape of the early Internet, is that regulatory arrangements such as delegations were not reflected in a publicly available suite of policy statements, such as rules about .au name allocation and resolution of disagreements with the trustee<sup>279</sup> .

Uptake of the Internet by Australian government agencies, businesses, educational institutions, other organisations and individuals placed significant pressure on Elz and those volunteers to whom he had delegated responsibility for other 2LDs. That pressure was quantitative (handling ever-increasing numbers of registration requests) and qualitative (responding to criticisms about delays in processing requests for registrations or the perceived absence of comprehensive policy statements attuned to commercial realities as the dot com boom gathered pace).

Both the pressure and the criticism were reflected in increasing attention from the Commonwealth Government

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<sup>278</sup> The term "wizard" was popularised by Hafner and Lyon's in their 1996 book.

<sup>279</sup> It is, perhaps, interesting to note that disputes about name allocation became much more prevalent when the use of domain names moved from an easy way of resolving the limitations of a number string to considerations of intellectual property protection. Not surprisingly, the 'first in, first served' rule did not satisfy those who perceived they deserved preferential treatment in the allocation of rights to use a domain name, especially if a domain name was the same as a recognisable brand or trademark used in the off-line environment.



and from business and community groups such as the Internet Industry Association (IIA) and the Internet Society's Australian chapter (ISOC-AU)<sup>280</sup>.

During the early development of new regulatory arrangements, there is great opportunity for personalities (either individual or corporate) to exert enormous influence over the regulatory agenda. This has certainly been the case in Australia.

Until the processes for objective regulatory management are in place, there is an 'influence transition' which takes place. Australia and the .au space are now at a point where the objective criteria for full range of regulatory functions are established.

During the Elz years, however, arrangements were made on a "rough consensus and running code" basis that meant very little to those outside the technical community within research institutions.

At the ICANN level, delegations for the management of country codes take up much of the resources of ICANN/IANA. Delegation arrangements are a major source of angst as it is perceived, in many quarters, that the management of the country code is a source of national honour, cash and control of a national asset.<sup>281</sup>

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<sup>280</sup> Background is provided in the discussion of ADNA and the Dot-Au Working Group in *The Road To Self-Regulation – The Australian Experience*, a 2002 NOIE paper at <http://inet2002.org/CD-ROM/lu65rw2n/papers/g03-a.htm>, and in the *auDA & the dot-au space* profile at <http://www.caslon.com.au/audaprofile.htm>. A history of ISOC-AU features on that organisation's site at <http://www.isoc-au.org.au>, complemented by the discussion of 'legitimacy' in Werle & Leib's 1999 *The Internet Society and its Struggle for Recognition and Influence*.

<sup>281</sup> This is certainly the case in small Pacific Island nations and in the developing economies of Vietnam, Cambodia and Laos.

In Australia's case, ICANN was motivated to provide as much assistance as possible to resolve the issue because, in part, it needed to have the country codes inside the ICANN "tent". Australia was the first country code administrator to sign a contract with ICANN under the country code arrangements. In turn, Australia required the support of ICANN/IANA to break the deadlock between Elz and the Commonwealth to formally hand over management of the space to .auDA.

The Minister of Communications, Information Technology and the Arts<sup>282</sup> is responsible for the direction of DNS policy in Australia. The Minister retains the right, under the 2000 amendment to the 1997 *Telecommunications Act* to effect regulatory arrangements for DNS management.

Even though Australia's Internet governance arrangements are, internationally, with ICANN under Californian contract law, the Commonwealth clearly maintains arm's length authority over the .au space. That the Commonwealth has devolved that authority to .auDA is evidence that the shift from government bureaucracy to a private sector model is now well underway.

I have set out here a very brief history of the management of the DNS in Australia. It focuses particularly on the way in which it has been managed as a technical resource rather than what it has been used for or how it has driven many other policy decisions such as the development of on-line content regulation, e-commerce standards or prohibitions on on-line gambling.

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<sup>282</sup> Senator Richard Alston has been the Minister for Communications since March 1996 and is the longest serving Federal Minister for Communications. He was Shadow Minister for Communications from 1989 to 1996.

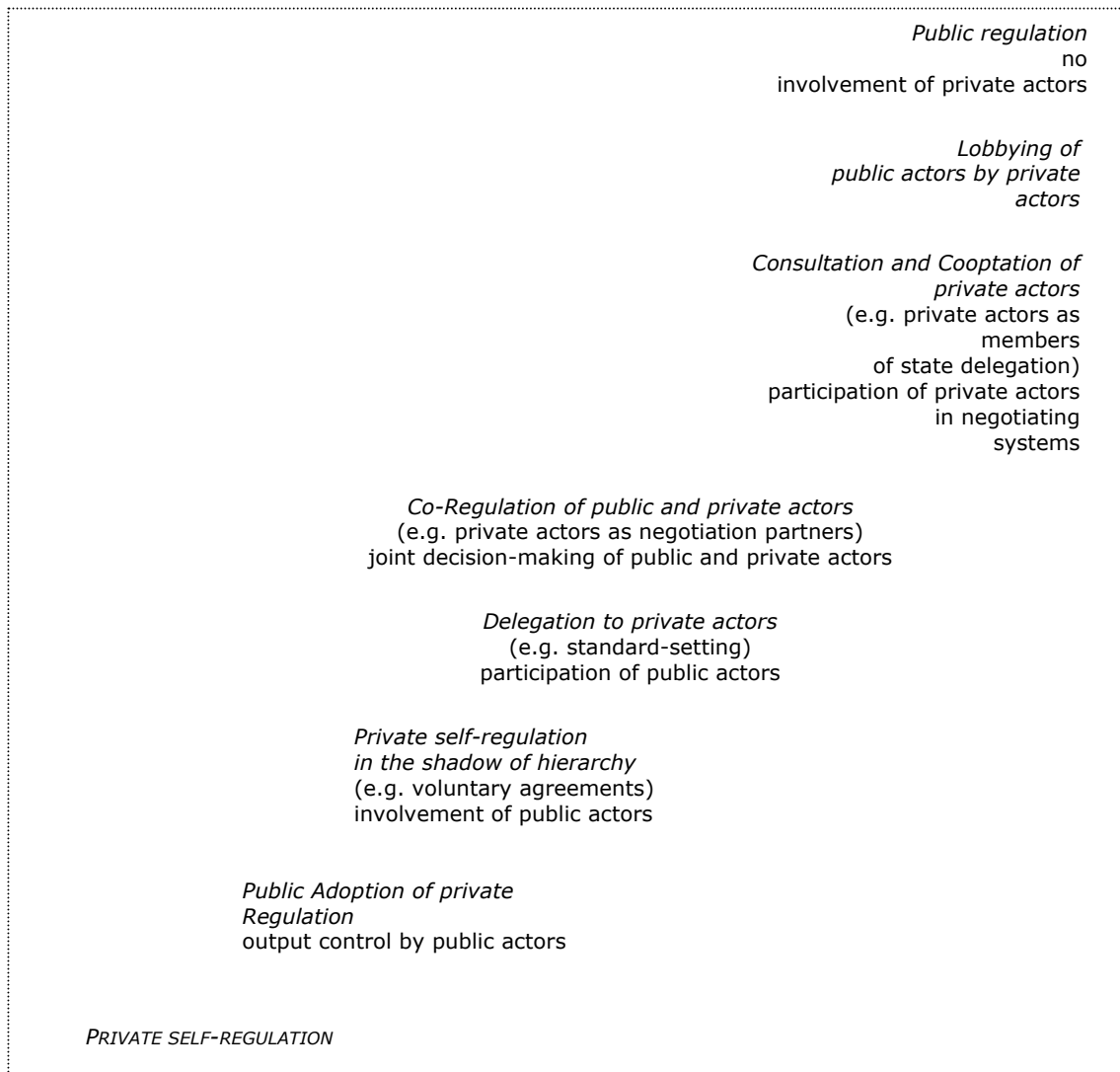
The Internet in Australia mirrors the way in which the Internet evolved in the USA. That AARNET developed the way in which it did is testimony to the impact of personalities on Internet governance. Those personalities have now been brought into a more institutional-like setting.

### **Regulatory Models**

The work of Sassen, Braithwaite & Drahos and Arup has been particularly helpful in providing literature to support the discussion of the shift to a private sector, self-regulatory model for Internet governance in Australia.

Börzel & Risse-Kappen have compiled diagrammatic representations of the 'realm of governance' which can be usefully employed to illustrate where the .auDA model sits (Börzel & Risse-Kappen 2001: 3,9). The diagram reproduced here would have .auDA sitting near to middle of the illustration and is best described as "delegation to private actors". In their analysis, they argue that "private self-regulation is often triggered by the very lack of effective international norms and rules".

The Realm of Public-Private Partnerships<sup>283</sup>



(Purely private regimes)  
no public involvement



<sup>283</sup> Reproduced by permission of the authors.

It is helpful to divert quickly into more general discussions of regulatory models. The spectrum ranges from completely public sector government bureaucracies to completely private sector arrangements with no intervention from governments.

.auDA, like its international equivalent ICANN, is a regulatory hybrid that approximates the co-regulatory model one finds in the Australian telecommunications, financial services or food standards industries. In the DNS case, the Minister, in effect, retains the right to re-delegate responsibility for the management of the .au domain name space. Now that the arrangements for this model have settled, it is unlikely this power would be used. However, in the early stages of the implementation of .auDA much concern was expressed about the conditions under which the Minister could withdraw his support.

The appointment of the two Independent Directors to .auDA, one of whom was appointed Chairman of the Board<sup>284</sup>, contributed greatly to a rapid increase in industry confidence that the organisation could indeed deliver on its mandate.

There had been an undercurrent of dissatisfaction, most regularly expressed on the e-mail DNS list<sup>285</sup>. The list is not

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<sup>284</sup> Tony Staley is a former Federal Minister of Communications, former Federal Director of the Liberal Party of Australia and close confidante of the current Minister for Communications, Richard Alston. Some concise background is found at <http://www.pm.gov.au/news/speeches/1999/staley0307.htm>

<sup>285</sup> The DNS list is open to the public with, at December 2002, about 350 subscribers. Like most on-line lists, there is a core of around 20 subscribers. Like many such lists, it is noted for the vehemence and passion with which views are expressed rather than their cogency or any reflection of a broader community view. The personal invective sometimes found on the list has been the source of some unhelpful destabilisation of the work of .auDA. It could also be argued that the "robust" character of the DNS list has dissuaded people from participating for fear that their e-mail in-boxes will be flooded with off topic raves from those with personal agendas. Recently, the list has undergone some changes and is now moderated to keep the debate on topic.

moderated and provides an open forum for comment on any DNS management issue in Australia. At its best, it is a mechanism for hearing end-user views and facilitating the transparency of .auDA's operations in a practical, timely and responsible way. At its worst, it has been a repository of personal invective, captured by a vocal minority who repeat their often unsubstantiated views loudly and often.

One measure of effectiveness of the current arrangements could be that the Board, since the appointment of the current Chief Executive Officer and Chairman, has been very stable. There have been no attempts to spill the Board or to force resignations. There has not been a major turnover of Directors and most have sought second and sometimes third terms. At a Board level there is strong degree of cohesiveness and cooperation whilst also taking very serious account of the work of the Policy Panels. It is interesting to note that the same situation exists at an international level within ICANN.<sup>286</sup>

The process for the withdrawal of Ministerial support for .auDA would require, under the legislation, the co-operation of both the ACA and the ACCC<sup>287</sup>.

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<http://www.ada.org.au/list/dns/archive/122000/0016.html>. This reference gives a slightly different slant on 'independent', 'consensus' and 'mandate' and is a balance to more positive coverage of .auDA's operations.

<sup>286</sup> Bret Fausett's website (<http://www.lextext.com/icann/>), ICANNWatch (for example contributions by Michael Froomkin at <http://www.icannwatch.org>) and online intervention by ICANN At Large Director Karl Auerbach (<http://www.cavebear.com>) are noteworthy.

<sup>287</sup> The ACCC's submission to WIPO's discussion of domain name registration neatly sets out the competition regulator's responsibility for and interest in .auDA's activities. Note however that the focus of the submission is on intellectual property protection rather than the governance of Internet architecture and resources. <http://www.accc.gov.au/ecommm/access1b.htm>

However, it is now unlikely that either regulatory agency would exercise their power under the legislation. This is particularly the case whilst .auDA continues to develop new policies for future second level domains, prepares to review its mandatory Registrar's Code of Practice and continues to actively involve a broad range of interest groups in both its structure and decision making processes.

### **.auDA: Structure, Operation and Mandate**

With an understanding of the broader research, a sense of the historical position, some knowledge of market statistics and some discussion of regulatory models, we can now turn to a more detailed examination of the operations of .auDA.

.auDA is a small organisation managed by a Chief Executive Officer, a Policy Officer and administrative staff. It is funded by contributions from members, registrar fees (\$11 per domain name registration), registry fees and, most recently, by off-budget windfalls from the sale of generic domain names. It does not receive funding from government.

It operates under the *Corporations Law* and is managed by a Board of Directors (currently 13) eleven of whom are

elected by .auDA's members<sup>288</sup> and two of whom are appointed as Independent Directors<sup>289</sup>.

A range of formal working parties has assisted policy development. Members of those parties serve on a voluntary basis. As such, the cost of regulation has been successfully transferred from government to those subject to the regulation in a similar way, for example, to the work of the Australian Communications Industry Forum (ACIF) which develops codes of practice for the telecommunications sector. Membership of .auDA's policy panels is representative of the broader community with skills in information technology and engineering, telecommunications policy, intellectual property protection and consumer advocacy. The Registrar's Code of Practice is a case in point.<sup>290</sup>

The activity of the working parties is publicised by .auDA through public forums and the online membership list. The working parties typically seek community submissions, for example, on appropriate competition models or names policy. Exposure drafts are released after regular physical meetings of the panels. These are refined after further public

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<sup>288</sup> Membership is open to Australian organisations and individuals (details at <http://www.ada.org.au>) with voting in staggered Board elections across three membership categories. This prevents Board capture by special interest groups. As at December 2002, .auDA had approximately 380 members – a similar number to ISOC-AU – including individuals, small businesses, consumer advocates and corporate interests. However, in compliance with the Australian *Privacy Act*, detailed demographics are not publicly available. Profiles of Board candidates published during elections suggest that candidates and, as importantly, those actually elected, are not restricted to major corporate interests of areas of expertise such as information technology and law.

<sup>289</sup> Currently the independent directors are former ICANN Board member Greg Crew (<http://www.icann.org/biog/crew.htm>) and Chair Tony Staley. The independent directors are paid for their work; the elected directors are not.

<sup>290</sup> The final version of the mandatory Code of Practice can be found at <http://www.ada.org.au/docs/ada-2002-26.pdf>. I was Chair of the Registrar's Code of Practice Committee, the membership of which was drawn from a broad spectrum of industry and consumer organisations.



consultation and input. The documentation is made public on the .auDA website and remains posted.<sup>291</sup> The use of working parties and policy panels reflects a commitment to consensus policymaking and inclusiveness. It also ensures that policy development is delivered from the community to .auDA. This achieves three objectives. It obviates the need for a large secretariat, it pushes the cost of regulation to the private sector and it ensures comprehensive compliance.

.auDA's legitimacy has not been successfully contested<sup>292</sup>. As outlined above, .auDA is supported by Commonwealth legislation but its operation is independent of government agencies. It is well recognised by ICANN staff and by the various ICANN constituencies in which Australians are active. Its authority ultimately rests on its ongoing effectiveness as a ccTLD manager which is demonstrated by the development of codes of practice, consensus-based policy and the input of a range of stakeholders. Objective management of the views of all stakeholders is critical. This objectivity is borne out in a policy environment which actively seeks to facilitate competition, which bolsters a robust internet services industry at both the registrar and reseller level. Operational objectivity is closely matched to international standards especially with respect to public

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<sup>291</sup> The transparency of .auDA's operation (through public forums, through online publication and through encouragement of participation in its working parties) has been little remarked. It is of interest in comparison to the operation of other regulatory bodies, where participation is difficult (eg restricted to a particular epistemic community) and where observers have access to outcomes rather than the deliberations that led to those outcomes.

<sup>292</sup> In contrast to ICANN it has not faced sustained criticism in legal, information technology or other publications and, overall, has secured the endorsement of bodies such as the Internet Industry Association, Australian Competition & Consumer Commission and ISOC-AU. 'Anti .auDA' groups, such as the DNS Action Group, do not appear to have a major following and proposals for an .auDA Watch site apparently did not eventuate.

consultation and consensus-driven policy and including a broader range of talents and skills including legal, policy, regulatory and commercial experience.

As a result, the regulatory load of DNS governance in Australia is spread across representatives from peak associations, registrars, the technical community and individual members. Regulatory capture is difficult to achieve and clearer business rules mean that investment decisions can be made in a relatively stable economic environment.

## **Conclusions**

If the DNS had remained a pure technical numbering resource, it is unlikely that the discussion of Internet governance would have created any traction in political and policy circles. The numbering system has been subsumed by discussions of naming, and who controls the system is a function of the politicisation of engineering. This is termed IP versus IP® elsewhere in the research and applies equally in Australia as it does internationally. The control of the naming system is a critical policy discussion. It is critical at the infrastructure layer; critical to users who rely on Internet resources for their businesses; critical to the consumer advocacy community as they discuss equitable access to the Internet and critical to those who wish to protect their brands and trademarks. The tensions between the political camps is obvious. With commercial importance comes the discussion of policy and then the enactment of mechanisms to govern fairly.

The evolution of the .au regulatory space continues in both a domestic and international context. The most significant changes forecast for the .au space are a review of existing policies and the introduction of new second level

domains. The latter is being considered during 2003 by a newly constituted policy panel.

The .auDA has reached a level of maturity which makes it unlikely that the Minister would find any justification for the forced re-delegation of authority from .auDA to any other organisation. The legislative and regulatory basis for the management of the .au DNS is stable with a small, solid administrative body running the policy functions and regulatory arm of the .au domain.

The paradigm shift is, with some hindsight, obvious. Significant regulatory changes have been produced by economic conditions in a technology boom, comprehensive broadband rollout which facilitates efficient Internet access, a highly educated and demanding set of consumers coupled with active government engagement across the spectrum of domestic and international policy debates. Considering these changes in the broader context of the globalisation of regulation and the development of a new regulatory economy, it is clear that the Australian experience will do much to inform the development of hybrid regulatory structures to manage DNS governance in other countries.

In the final chapter, I revisit the key findings of the research, make some predictions about future trends and identify future research areas.

## CHAPTER EIGHT – CONCLUSIONS AND FUTURE RESEARCH

*In research the horizon recedes as we advance, and is no nearer at sixty than it was at twenty. As the power of endurance weakens with age, the urgency of the pursuit grows more intense. . .And research is always incomplete<sup>293</sup>*

The research here ranges across political science, technology and the regulatory treatment of the technical resources of the Internet.

It examines the development of globally applicable standards and norms for managing the critical technical infrastructure of the Internet. In doing so, the research applies the general study of globalisation to a new industry, a new regulatory agency and a new set of global actors.

It is a technical work that demonstrates an understanding of the DNS and the commercial advantages which have emerged from the development of a simple directory service into network which supports a wide range of applications. The research shows an understanding of the politics and policies surrounding the management of the technical resources that enable the Internet to function and the broader influences of the development of a hybrid regulatory agency.

There are three key contributions to the scholarship. They are the application of the general globalisation literature to the domain name registration industry and the new regulatory economy spawned by the commercialisation of the DNS; the collection and collation of statistics on participation

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<sup>293</sup> Pattinson, Mark (1875) *Isaac Casaubon*, Chapter 10.

in ICANN and a hypothesis which has been tested and proven through textual analysis of the literature.

The research also provides a comprehensive glossary of key terms and stakeholders that has not previously been done. It delivers a comprehensive bibliography and provides a collection of fundamental materials which have disappeared from the Internet.

### **New Concepts**

The global governance of Internet architecture by a wide range of disparately located private sector actors, in corporations and as individuals, is now well established through the ICANN's processes and procedures. Over the life of the research, four key equations have emerged from the work which illustrate the extent of influence drift towards international governance. They are the tensions between legislation and regulation; sovereignty and stewardship; ownership and trusteeship; national government and international governance and the commercial and non-commercial use of Internet resources.

### **Key Findings**

The research has examined three key areas of enquiry. The globalisation of the regulation of critical infrastructure; the global market for domain names and domain name registration services; and the development policies and processes for the global governance of the DNS.

The globalisation of business regulation literature can now be applied to a new industry sector and regulatory model. The governance of the Internet DNS is important because the Internet network underpins a critical communications system that lies outside the realm of national

jurisdiction and the multi-lateral treaty system that governs, for example, the telecommunications system. In addition, the entities that use the Internet network for the applications that are the core of their business operations (for example, the registration of Internet domain names and the broader suite of electronic commerce transactions) are intrinsically global in their nature. This fact provides dimension to the application of the globalisation literature. The key features of the Internet are that it is a global network, whose assets are derived from public funds, whose management is paid for, in the main, by private corporations and whose operations demonstrate a separation between the location of customers and the services those customers can purchase.

I have collected and analysed data on a new demographic of influence in Internet governance. This demographic has shifted away markedly from the historical case. Technical experts, principally engineers and software code writers, took the lead in the development and implementation of a wide variety of protocols that make the Internet work.

Key influence now resides with a broader spectrum of lawyers, commercial deal makers, regulatory specialists and marketing analysts who form the core of the cosmocrats. The research has tracked the establishment of a new culture of control or, as I have termed it, a global cosmocracy which attempts to devolve the commercial advantages of the Internet network in a way which is transparent, fair and grounded in bottom-up policy development models based on consensus.

I have described the impact of commercial developments in the DNRI on the implementation of a new system of managing critical infrastructure, outside the scope

of multi-lateral government sponsored and, therefore, binding arrangements.

Understanding the involvement of national governments, the formation of new regulatory institutions and the influence of corporations on the structure of regulation are the core of this work.

The development of the DNRI graphically illustrates the influence of politics, market size and corporate intent. I have tracked the major global participants from both national governments and corporations, analysed their financial and time commitments to developing and implementing workable governance structures and developed some early methodologies for tracking a new demographic of influence.

I have found that national governments have, despite ongoing control within their national jurisdiction, little effective influence over the management and governance of the DNS at an international level. I have found that corporations have significant power to determine the way in which policies for the management of the technical resources of the Internet are discussed, developed to consensus policy positions, implemented and reviewed.

## **Chapter Summary**

A review of the chapters summarises the key parts of the work. Chapter One set out the context of the work and framed the way in which the work was undertaken. It provided a brief history of the Internet, as that history relates to the technical management of the Internet network and the strong culture of regulatory volunteerism that developed around the RFC system. Volunteerism has continued to be important in the newly constructed policy development mechanisms of ICANN. Cost substitution is also important.

Whilst the Internet and the research that developed it was confined to research institutions and the military, the cost was absorbed by taxpayers in the United States and elsewhere. Now that the majority of costs are met by private sector corporations, the motivation for the donation of time and expertise has shifted, the actors have changed and expected outcomes have altered.

Chapter One also identified key individuals and corporations involved in the formation of ICANN. This is important information because over the life of the research, whilst ICANN's processes and procedures have been under development, personalities have been more important than objective rules and regulations. Finally, the Chapter gave an overview of the market demographics of the industry in questions. The statistics provide a snapshot of key data about the extent of electronic commerce, market capitalisations of domain name registration companies and others in the industry such as hardware and software providers.

Chapter Two contained a comprehensive literature search across three key themes. These were the globalisation of regulation, regulatory frameworks and the DNS and the multifaceted public policy debate about the management of the Internet's technical resources. The findings have contributed to the literature in three key ways. They expand the discussion of the globalisation of regulation and provide some original conceptual thinking on the demographics of global influence patterns. I have expanded the literature on the role of governments and their relevance in global regulatory structures and on the place of national governments as regulators of the DNS.



Chapter Two also contained an explanation of the research methodology employed here. The challenge of much of this work has been that the Internet is a constantly evolving phenomenon. To contain the research scope only data up to November 2001 has been used. The broader thrust of the research seeks to understand some conceptual thinking which frames the development of hybrid regulatory models for the DNS.

Chapter Three focused on a philosophy of naming as it assists in understanding the intrinsic value of the DNS and how that value has devolved to domain names. It describes the shift from the use of number strings to names which have manifestly different values. Control of the system which enables the resolution of Internet numbers to domain names and the policies enabling their effective use is critical to understanding the importance of the shift from IP numbers to the widespread use of domain names. The chapter opened up some of the complex arguments surrounding domain name policy and its component parts of naming, ordering, ranking and labelling. Understanding why names are so important and why effective but forgettable numbers are replaced by names gives insight into the underlying importance of the DNS, stressing the 'name' rather than the system.

Understanding the value of names to individuals, to groups, to businesses, to the organisation of society resides in history and philosophy. Chapter Four provided a general discussion of ICANN, its constitution and its by-laws. It explored the core of ICANN's mandate which is management of technical functions which enable the Internet to function reliably.

Chapter Five discussed governance by the private sector as opposed to governance by governments. It

illustrates, through data about the GAC, the changing interplay between national governments, a hybrid private sector regulatory authority and the broader domain name industry. The chapter reached some conclusions about the role of national governments in the regulation of the global DNS and their relevance to ICANN. In ICANN's current form, national governments have been deliberately and strategically marginalised.

Chapter Six discussed the nature of corporate strategy and the influence of corporations on the development of Internet governance models. The chapter draws together, for the first time, a comprehensive understanding of the types and kinds of corporations, both large and small, US-based and non-US, that have been involved in the early stages of ICANN's development. The statistics in the chapter provide an early data set on which to draw some conclusions about the kind of influence corporations have exerted on both policies and procedures for making decisions and the decisions themselves, particularly in the expansion of the domain name space by introducing new generic top level domain names (gTLDs).

Chapter Seven provided detailed examination of Internet governance in Australia. It is the first detailed discussion of DNS governance in Australia and contributes a comprehensive historical review and analysis of the transition to an industry self-regulatory model. It is a case study of how complex and multifaceted DNS governance has become in a national context whilst, at the same time, drawing direct parallels from the global experiences with ICANN. The .au domain name space provides a very useful illustration of the evolution of geographic ccTLD DNS governance, at a critical point in the development of ICANN at an international level.

The process through which the .au domain name space evolved is instructive when trying to understand the impact of the hybridisation of regulation on a global scale.

The evolution of the domain name market, in parallel with a regulatory experiment of open DNS governance, remains a work in progress.

The thesis also contains a comprehensive glossary of key terms, stakeholders and abbreviations to facilitate an explanation of the research. The appendices hold all the statistical data and charts; the bibliography presents all the materials used in the thesis, both on-line and off-line and the supplementary material provides some critical resources which are only available, sometimes unreliably, on-line.

## **Future Research**

The key findings of the work have led to the following ideas for future research. The extension of the comprehensive literature on global business regulation and its application to a new field of governance requires further examination especially with respect to the nature of cosmocrats. I am developing methodologies to conduct in-depth interviews with representatives of corporations, academic institutions and other entities to better understand who cosmocrats are as individuals. This work will extend the understanding of the characteristics to cosmocrats including what languages they speak, where they live and work and what kinds of technology enable them to participate in global DNS governance.

The protection of critical infrastructure by regulation and standards will form a key part of further work. The focus on network security, communications reliability and the protection of infrastructure assets has been identified as a

crucial part of both a domestic and international set of policy priorities.

The research has also identified significant disconnections between global policy development and the implementation of consistent standards of Internet governance within developing economies. Developing consistent, objective methods to introduce robust regulatory models into developing economies that facilitates widespread access to the Internet will form a crucial part of further work.



## ***SECTION C – APPENDICES***

This section contains the full charts and explanations for the data that was collected throughout the research.

## **APPENDIX ONE – ICANN MEETING RAW DATA**

This data is produced using publicly available meeting lists from ICANN’s official website. Some qualifications are necessary about the baseline data used for the analysis. Firstly, the records of attendance at ICANN meetings are often inaccurate with duplicate names, clearly false or bogus names and registrations which may not necessarily reflect actual attendance. For example, a person could register for the meeting and not attend or only attend for one session or the opening reception. For three meetings in Singapore, Berlin and Santiago meetings, we only have remote participation figures available although physical meetings took place evidenced by the meeting archives held on ICANN’s website. The raw data has been categorised as follows:

### **(B) BUSINESS**

Attendees include commercial registrars, commercial registries, law firms, content providers, journalists, e-commerce service providers, industry advocacy groups. The representatives from these sectors have been most active in the Domain Name Supporting Organization (DNSO).

### **(G) GOVERNMENT**

Attendees include representatives of national governments and multilateral agencies. The representatives from these sectors have been most active in the Governmental Advisory Committee (GAC).

### **(E) ENGINEERS**

Attendees include telecommunications companies, hardware/software providers, network operators, and international organisations such as the International Organization for Standardization (ISO).

### **(A) AT LARGE**

Attendees include academics, research institutions, civil society advocates and Internet Society members.

### **(U) UNIDENTIFIED**

Attendees who have no obvious affiliation.

### **(I) ICANN**

ICANN staff.

There is some overlap between categories and some members of some organisations will appear in a number of different sub-meetings. Participation numbers may differ from those published by ICANN and there is no completely reliable set of attendance data. In spite of the data quality, some very clear patterns have emerged which identify key corporations and their representatives who have consistently attended the meetings and who have been actively involved in the Constituency working groups such as the Registrars’ Constituency, the gTLD and ccTLD

Registry Constituencies and the Intellectual Property Constituency.  
Where possible, the gender of attendees has been identified.



**CAMBRIDGE, MASS, 14 NOVEMBER 1998**

Category	Physical	Remote	Total
B	108	--	108
G	2	--	2
E	16	--	16
A	49	--	49
U	68	--	68
I	10	--	10
Gender Female 45 Male 208	253	--	253

**SINGAPORE, 2-4 MARCH 1999**

Category	Physical	Remote	Total
B	--	46	46
G	--	2	2
E	--	12	
A	--	13	
U	--	11	
I	--	--	
Gender Female 6 Male 78	--	84	84

**BERLIN, GERMANY, 25-27 MAY 1999**

Category	Physical	Remote	Total
B	--	45	45
G	--	3	3
E	--	2	2
A	--	17	17
U	--	13	13
I	--	--	--
Gender Female 7 Male 70 Unidentified 3	--	80	80

**SANTIAGO, CHILE, 24-26 AUGUST 1999**

Category	Physical	Remote	Total
B	--	60	
G	--	7	
E	--	6	
A	--	14	
U	--	18	
I	--	2	
Gender Female 17 Male 90	--	107	107

**LOS ANGELES, USA, 1-4 NOVEMBER 1999**

Category	Physical	Remote	Total
B	317	58	375
G	30	--	30
E	43	6	49
A	51	18	69
U	34	21	55
I	3	--	3
Gender Female 108 Male 473	478	103	581

**CAIRO, EGYPT, 7-10 MARCH 2000**

Category	Physical	Remote	Total
B	213	61	274
G	39	8	47
E	67	5	72
A	59	28	87
U	18	35	53
I	16	--	16
Gender Female 96 Male 452 Unidentified 1	412	137	549



**YOKOHAMA, JAPAN, 1-4 JULY 2000**

Category	Physical	Remote	Total
B	429	71	500
G	72	1	73
E	74	6	80
A	123	26	149
U	68	53	121
I	10	4	14
Gender Female 98 Male 839	776	161	937

**LOS ANGELES, USA, 13-16 NOVEMBER 2000**

Category	Physical	Remote	Total
B	677	212	889
G	42	5	47
E	67	8	75
A	80	35	115
U	40	126	166
I	18	4	22
Gender Female 204 Male 1104 Unidentified 6	924	390	1314

**MELBOURNE, AUSTRALIA, 10-13 MARCH 2001**

Category	Physical	Remote	Total
B	590	91	681
G	53	2	55
E	57	5	62
A	90	26	116
U	72	55	127
I	21	--	21
Gender Female 182 Male 880	883	179	1062

**STOCKHOLM, SWEDEN, 1-4 JUNE 2001**

Category	Physical	Remote	Total
B	511	49	560
G	66	--	66
E	61	4	61
A	84	22	106
U	27	34	61
I	33	8	41
Gender Female 151 Male 748	782	117	899

**MONTEVIDEO, URUGUAY, 7-10 SEPTEMBER 2001**

Category	Physical	Remote	Total
B	313	81	394
G	26	1	27
E	23	4	27
A	54	17	71
U	22	36	58
I	33	3	36
Gender Female 114 Male 497 Unidentified 2	471	142	613

**MARINA DEL REY, USA, 12-15 NOVEMBER 2001**

Category	Physical	Remote	Total
B	539	53	592
G	35	3	38
E	26	4	30
A	73	13	86
U	48	33	81
I	30	6	36
Gender Female 137 Male 726	751	112	863





## APPENDIX TWO – ICANN MEETING BUSINESS PARTICIPATION

Meeting Location	Cambridge 14 November A1998	Singapore 2-4 March 1999	Berlin 25-27 May 1999	Santiago 24-26 August 1999	Los Angeles 1-4 November 1999	Cairo 7-10 March 2000	Yokohama 14-17 July 2000	Los Angeles 13-16 November 2000	Melbourne 10-13 March 2001	Stockholm 1-4 June 2001	Montevideo 7-10 September 2001	Marina del Re 12-15 November 2001
Sample Size/Meeting	253	84#	80#	107#	581	549	937	1314	1062	899	613	863
<b>Domain Name Industry</b>												
Network Solutions	2			1	7	8	14	8		1		
Verisign								12	9	5	3	14
Tucows						1	4	7	2	1	4	4
Register.com	1	1			2	3	7	14	8	5	2	7
Joker								1			1	
Schlund								1	1	3		
Neteka				1		5	3	3	2	2	2	2
NetNames	1				5	2	2	2	2			1
Enom				1	1	2	2	2	3	2		2
BulkRegister	1					3	3	3	3	1	1	2
Melbourne IT					3	3	7	9	22	10	7	9
dot-TV						2	5	26	4	3	5	11
SpeedNames						2	4	5	7	9		6
ARIN				3	2			2	2	3	3	3
CENTR					1	2	1	1	1	1	1	1
RealNames				1	1	1	1	1	16	12	11	10
New.Net									3	4	4	27
Nominet					1	2	1	1	3	4	1	2
AuDA						1	1	3	6	3	1	2
ISOCNZ		3	2		2	3	2	2	10	3	3	3
CIRA					1			1			2	2
<b>DNI Total</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>7</b>	<b>26</b>	<b>40</b>	<b>57</b>	<b>104</b>	<b>102</b>	<b>72</b>	<b>47</b>	<b>97</b>
<b>Telco/ISP</b>												
AT&T	2				4	1	2	2	2	2	2	1
MCI WorldCom	1	1		1		1	2	2	1	2	1	2
BT					4	2	2	3	3	3	2	
Deutsche Telekom	1				4	5	5	4	2	5	1	2
NTT		2			2	1	13	2	1			
France Telecom		1				1	1	2	2	3	2	1
AOL					1	2	1	1	1			
Tele2			2							6		
Telefonica					1	1	1	1		4	1	2
Bell Atlantic	1				3	3	2	3	1			
EuroISPA	2				1	1				1		
<b>Telco/ISP Total</b>	<b>7</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>20</b>	<b>18</b>	<b>29</b>	<b>18</b>	<b>13</b>	<b>26</b>	<b>9</b>	<b>8</b>
<b>Legal</b>												
Wilmer Cutler	1		1		2		1	2	3	2	2	2
Shapiro Cohen			1	1	2	2	1	1				1
Steptoe Johnson			1				1					
Skadden Arps	2				2	2				1		2
Jones Day	2					1			2	1	1	
Christie Parker		1							2	1	1	1
Baker McKenzie									1			
Maddock Lonie										7		2
Perkins Coie								1				
Thomsons	2			1	1	1		2				

	<b>Cambridge</b> 14 November 1,000	<b>Singapore</b> 2-4 March 1999	<b>Berlin</b> 25-27 May 1999	<b>Santiago</b> 24-26 August 1,000	<b>Los Angeles</b> 1-4 November 1,000	<b>Cairo</b> 7-10 March 2000	<b>Yokohama</b> 14-17 July 2000	<b>Los Angeles</b> 13-16 November 2,000	<b>Melbourne</b> 10-13 March 2,000	<b>Stockholm</b> 1-4 June 2001	<b>Montevideo</b> 7-10 September 2,000	<b>Marina del Re</b> 12-15 November 2,000
Sample Size/Meeting	253	84#	80#	107#	581	549	937	1314	1062	899	613	863
Corrs								1	3			
Yuasa & Hara							2	1	1	1		1
Legal Total	7	1	3	2	7	6	3	13	16	5	2	9
<b>IP Advocacy</b>												
INTA	3				2	1	1	1	1	1		1
MPA/A		1	1		3	1	1	3	1	1	1	3
AIPLA	1				2		2	1				
RIAA						1		1				
IP Advocacy Total	4	1	1		7	3	4	6	2	2	1	4
<b>Hardware / Software</b>												
IBM	2	1			2	1	2		1			
Fujitsu						1	4	1	1	1		1
Sun							1	2	1			
GTE	1											
Cisco	1		1	1	1		2	1	1	2		1
Nortel	1											
Microsoft	1											1
Bull		1			2	2						
Siemens								1	2		3	1
Adobe		1										
Hardware / Software Total	6	3	1	1	5	4	9	5	6	3	3	4
<b>Investment</b>												
Quilcap		1	1									
Prudential		1	1									
Hambrecht & Quist					1							
Dun & Bradstreet	1					1						
Investment Total	1	2	2	1	1							
<b>Services</b>												
KPMG									1	1		
Hill & Knowlton								2	1	1		
Edelman								1	1			
Services Total								3	3	2		
<b>Content</b>												
Time Warner					1			2	1	1	1	
Sony					3	2						
Viacom					1							
Disney		1			1			2	1			
LVMH					1	1	2					
Content Total		1			7	3	2	4	2	1	1	
<b>Civil Society</b>												
CDT					3	3	1	2	2	2	2	3
CPSR	2						1	1	1	1	1	2
Bertelsmann Fdn						2	1	2				

	<b>Cambridge</b> 14 November 1996	<b>Singapore</b> 2-4 March 1999	<b>Berlin</b> 25-27 May 1999	<b>Santiago</b> 24-26 August 1999	<b>Los Angeles</b> 1-4 November 1999	<b>Cairo</b> 7-10 March 2000	<b>Yokohama</b> 14-17 July 2000	<b>Los Angeles</b> 13-16 November 2000	<b>Melbourne</b> 10-13 March 2001	<b>Stockholm</b> 1-4 June 2001	<b>Montevideo</b> 7-10 September 2001	<b>Marina del Re</b> 12-15 November 2001
Sample Size/Meeting	253	84#	80#	107#	581	549	937	1314	1062	899	613	863
Markle Foundation					3	2	1		1		1	1
Common Cause						2	1	1	2	2	2	1
ISOC§	1		1	2	2	8	10	7	8	12	5	7
Civil Society Total	3		1	2	8	17	15	13	14	17	11	14
<b>Multilateral</b>												
ITU		1				1	1			1	1	1
WIPO				1		1	2		2			1
OECD		1								1		
Multilateral Total		2		1		2	3		2	2	1	2
Sample Size/Meeting	253	84#	80#	107#	581	549	937	1314	1062	899	613	863
Category Total	33	18	12	14	82	93	124	169	161	133	77	150

# Figures are for Remote Participation Only.

§ Global ISOC and affiliated national/local (eg excludes ISOCNZ)



## **APPENDIX THREE – GOVERNMENTAL ADVISORY COMMITTEE MEETINGS 1999-2001**



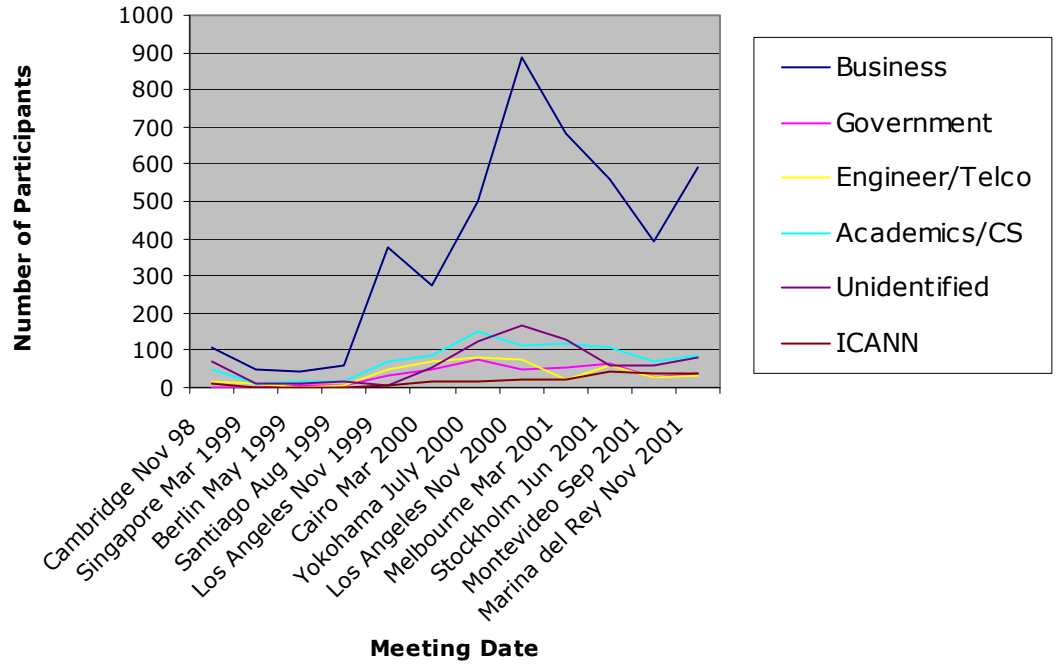
## **GAC MEETING TABLES NOTES**

This information was collated using the publicly available minutes of the GAC meetings found on the National Office for the Information Economy website, the official GAC Secretariat for the period of the meetings.

<http://www.noie.gov.au/projects/international/gac/index.htm>

These meetings were held on 2-4 March 1999 in Singapore; 25-27 May 1999 in Berlin, Germany; 23-26 August 1999 in Santiago, Chile; 1-4 November 1999 in Marina del Rey, California; 7-10 March in Cairo, Egypt; 13-17 July 2000 in Yokohama, Japan; 13-16 November 2000 in Marina del Rey, California; 9-13 March 2001 in Melbourne, Australia; 1-4 June 2001 in Stockholm, Sweden; 7-10 September 2001 in Montevideo, Uruguay and 12-15 November 2001 in Marina del Rey, California. The author attended seven of the eleven ICANN meetings held at the same time as the GAC meetings.

## APPENDIX FOUR – PROPORTIONAL REPRESENTATION CHART





## **SECTION D – BIBLIOGRAPHY**

The bibliography lists information in the following way.

- ICANN Public Meeting and Governmental Advisory Committee Meeting Minutes and Attendance Lists
- Government and Industry Statements, Agreements and Proceedings
- Government and Industry Discussion Papers, Reports and Information Sheets
- Books, Monographs, Papers and Dissertations
- Academic Journal Articles and Book Chapters
- Newspaper and Magazine items
- Government and Corporate Web Sites
- Weblogs, individual web sites, news groups and personal communications

Online content has been accessed over the past four years. As discussed in comments on the literature search, the volatility of on-line resources means that particular items may no longer be found at the listed URL. The item may have been moved behind a firewall or been renamed during restructuring of a site or may have been taken down completely. Hardcopy of that content has, however, been made as part of research for the dissertation.

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- Meeting 11 (Montevideo, Uruguay: 7-10 September 2001); at  
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- Meeting 2 (Berlin, Germany: 25 May 1999) Executive Minutes; at  
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- Meeting 3 (Santiago, Chile: 26 August 1999) Executive Minutes; at  
<http://www.noie.gov.au/projects/international/gac/meeting/s/mtg3/gac3min.htm>
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## **GOVERNMENT AND CORPORATE WEB SITES**

- Attorney-General's Department  
Australian federal government agency  
<http://law.gov.au>
- .au Domain Administration Ltd  
Australian domain administrator  
<http://www.ada.org.au>
- Australian Bureau of Statistics (ABS)  
Australian federal government agency  
<http://www.abs.gov.au>
- Australian Communications Authority (ACA)  
Australian federal government agency  
<http://www.aca.gov.au>
- Australian Competition & Consumer Commission (ACCC)  
Australian federal government agency  
<http://www.accc.gov.au>
- Australian Telecommunication Users Group (ATUG)  
Australian industry body  
<http://www.dcita.gov.au>
- Canadian Internet Registration Authority (CIRA)  
Canadian domain administrator  
<http://www.cira.ca>
- Caslon Analytics  
Australian business analyst  
<http://www.caslon.com.au>
- Center for Democracy and Technology (CDT)  
Global civil society body  
<http://www.cdt.org>
- Common Cause  
US civil society body  
<http://www.commoncause.org>
- Department of Commerce (DoC)  
US federal government agency  
<http://www.doc.gov>
- Department of Communications, Information Technology and the Arts (DCITA)  
Australian federal government department  
<http://www.dcita.gov.au>
- Department of Trade and Industry (DTI)  
UK government agency  
<http://www.dti.gov.uk>

Electronic Freedom Australia (EFA)  
Australian civil society body  
<http://www.efa.org.au>

Electronic Frontiers Foundation (EFF)  
US civil society body  
<http://www.eff.org>

European Commission (EC)  
European Union government agency  
<http://www.eu.int>

International Organization for Standardization  
United Nations agency  
<http://www.iso.int>

International Telecommunications Union (ITU)  
United Nations agency  
<http://www.itu.int/members/sectmem/participation.html> (

Internet Architecture Board (IAB)  
Global Internet technical advisory group  
<http://www.iab.org>

Internet Corporation for Assigned Names and Numbers (ICANN)  
Global domain administrator  
<http://www.icann.org>

Internet Industry Association (IIA)  
Australian industry body  
<http://www.iaa.net.au>

Internet Society (ISOC)  
Global civil society body  
<http://www.isoc.org>

Internet Society of Australia (ISOC-AU)  
Australian chapter of Internet Society  
<http://www.isoc-au.org.au>

IP Lender.com (2001)  
Domain name-based financier  
<http://www.iplender.com>

National Office for the Information Economy (NOIE)  
Australian federal government agency  
<http://www.noie.gov.au>

National Telecommunications & Information Administration (NTIA)  
US federal government agency  
<http://www.ntia.doc.gov.au>

Nominet  
.uk registry administrator  
<http://www.nominet.org.uk>

Organisation for Economic Cooperation and Development (OECD)  
Global intergovernmental body  
<http://www.oecd.org>

World Intellectual Property Organization (WIPO)  
United Nations agency  
<http://www.wipo.org>

World Trade Organization (WTO)  
Global intergovernmental body  
<http://www.wto.org>

## **WEBLOGS, INDIVIDUAL WEB SITES, NEWS GROUPS AND PERSONAL COMMUNICATIONS**

Auerbach, K personal site of Karl Auerbach  
<http://www.cavebear.org>

DNS List  
Australian domain name industry newsgroup  
password-protected partial archive at  
<http://www.auda.org.au>

Froomkin, M  
Personal site of Michael Froomkin  
<http://www.law.tm>

Froomkin M. (2000) FC: ICANN creates election committees  
without public input  
16 May 2000 E-mail from [froomkin@law.miami.edu](mailto:froomkin@law.miami.edu) to Declan  
McCullagh, [declan@well.com](mailto:declan@well.com)

Geist, M  
Personal site of Michael Geist  
<http://www.michaelgeist.com>

ICANNWatch  
Global civil society site  
<http://www.icannwatch.org>

Rowe, J  
Personal site of Joshua Rowe  
<http://www.whatsinaname.com.au>



## ***SECTION E – SUPPLEMENTARY MATERIAL***

The materials included here are critical to three chapters in the thesis. Chapter Four on ICANN, Chapter Five on chapter on regulatory relevance and the role of governments and Chapter Six on Cosmocracy and Corporate Strategy. The documents can generally only be found online with unreliable hyperlinks to them.

### **A. FRAMEWORK FOR GLOBAL ELECTRONIC COMMERCE, 1 JULY 1997**

This article is not available online. Please consult the hardcopy thesis available from the QUT Library
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**B. THE US DEPARTMENT OF COMMERCE – REQUEST FOR  
COMMENT ON DNS ADMINISTRATION, 2 JULY 1997**

This article is not available online.  
Please consult the hardcopy thesis  
available from the QUT Library

**C. THE US DEPARTMENT OF COMMERCE – A PROPOSAL TO  
IMPROVE THE TECHNICAL MANAGEMENT OF INTERNET NAMES  
AND ADDRESSES, 20 FEBRUARY 1998 (GREEN PAPER)**

This article is not available online.  
Please consult the hardcopy thesis  
available from the QUT Library

**D. THE US DEPARTMENT OF COMMERCE – STATEMENT OF POLICY  
MANAGEMENT OF INTERNET NAMES AND ADDRESSES , 5 JUNE  
1998 (WHITE PAPER)**

This article is not available online.  
Please consult the hardcopy thesis  
available from the QUT Library

**E. MEMORANDUM OF UNDERSTANDING BETWEEN THE US  
DEPARTMENT OF COMMERCE AND ICANN, 25 NOVEMBER  
1998**

This article is not available online.  
Please consult the hardcopy thesis  
available from the QUT Library

**F. GOVERNMENTAL ADVISORY COMMITTEE OPERATING  
PRINCIPLES, 25 MAY 1999**

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