DISS 790 – Information Policy: Assignment B
Information Infrastructures, Telecommunications, and International Perspectives

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An Abstract of a Paper Submitted to Nova Southeastern University in Fulfillment of the Requirements for DISS 790 – Information Policy: Assignment B

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The paper that follows was submitted to satisfy the requirements of DISS 790 – Information Policy: Assignment B. In the following pages, the paper completed the following assigned tasks:

1. Write an essay defining the following information infrastructure terms and their interrelationships: National Information Infrastructure, the Internet, Internet2, Abilene Project, Information Superhighway, World Wide Web, vBNS and its successors, and Next Generation Internet.
2. What role should government agencies (at any level) play in the management, funding, or operation of the Internet? Be sure to support your position with examples.
3. Has the 1996 U.S. Telecommunications Act been a success or a failure?
4. Describe some basic philosophical differences between the view of public access to government information in the U.S. and Canada. To what can one attribute these differences?
5. Provide examples of government efforts from three countries to restrict access to the Internet. Name the three countries and explain what types of materials are being restricted, why the restrictions are in place, and how successful these restriction efforts are deemed to be.

Table of Contents

Task 1

Write an essay defining the following information infrastructure terms and their interrelationships: National Information Infrastructure, the Internet, Internet2, Abilene Project, Information Superhighway, World Wide Web, vBNS and its successors, and Next Generation Internet.

Since the U.S. Defense Department commissioned ARPANET in 1969 to promote networking, new information infrastructure terms have developed (Zakon, 2000). Included among these (in order of their evolution) are the Internet, World Wide Web (WWW), National Information Infrastructure, Information Superhighway, vBNS and its successors, Next Generation Internet (NGI), Internet2, and the Abilene Project.

Internet (1973)

In the early 1970s, researchers doing work for the Department of Defense used ARPANET, the forerunner of the Internet. Their efforts developed into the Internet, which was originally a series of high-speed links between educational and research institutions and major supercomputer sites (Freedman, 2000). A significant part of it was the NFSNet, managed by the U.S. National Science Foundation. The Internet is a network of networks linked by several layers of protocols. It uses Internet protocol (IP) to route digital packets of information across a variety of networks and communications media in an efficient and reliable manner. In addition, transmission control protocol (TCP) manages the transmission and receipt of messages.

World Wide Web (1991)

Tim Berners-Lee at CERN (European Center for Nuclear Research) developed the World Wide Web (WWW), or the Web, as a tool for collaboration in the high-energy physics community (CERN, 1997). It spread quickly to other fields because it allowed easy access to large quantities of information. The Web is an Internet facility that links

documents. The fundamental Web format is a text document embedded with hypertext tags that provide page formatting in addition to the hypertext links to other Web pages.

A Web document, or Web page, contains graphics, text, animations, and hypertext links. The links allow users to jump from page to pages. These pages may be stored locally on the same server or on a server half way around the world. In the late 1990s, the Web became the center of Internet activity because of the development of Web browsers. The Mosaic browser, developed the University of Illinois, was in large part responsible for the phenomenal growth of the Web (Ralston, Reilly, & Hemmendinger, 2000). Browsers, such as Mosaic, Netscape Navigator, and Microsoft Internet Explorer, provide users with an easy, point and click graphical interface to the largest collection of online information in the world.

National Information Infrastructure (1993)

The same year that Mosaic was released the Clinton/Gore administration proposed the National Information Infrastructure initiative, an installation of universal high-bandwidth telecommunications throughout the United States (NIST, 1997). The Information Infrastructure Task Force (IITF) formed by the White House proposed the creation of a national network funded by private industry. The network would support the communication of data, images, voice, and video, and would provide service to rich and poor alike.

Today the National Information Infrastructure (NII) includes more than the physical hardware to transmit, store, and process data. It encompasses equipment that includes scanners, cameras, keyboards, telephones, computers, fax machines, cable, wire, satellites, televisions, printers, and more. In addition to the United States, other

governments recognize the value of telecommunications and information technology to their economies. The Global Information Infrastructure (GII) is an outgrowth of that awareness.

Information Superhighway (1993)

The Information Superhighway is another expression for the NII (Mason, 1994). Al Gore dedicated the Information Superhighway during a keynote address in Los Angeles in January 1993. During the next few years, the phrase became synonymous with the digital revolution.

vBNS and Its Successors (1995)

The Very High-speed Network Bandwidth Service (vBNS) is a high-speed network backbone developed by the National Science Foundation (NSF) and MCI. The service interconnects several supercomputer centers at 622 Mbps (OC-12). vBNS currently provides backbone services for Internet2.

vBNS+ is the successor to vBNS and is the product of a five-year agreement between MCI and the NSF (Bonica, 2000). vBNS+ is an integration of UUNET Internet access, WorldCom ATM, and SONET private line and frame relay inter-working. The service employs a dual backbone topology. All backbone trunks are OC-12 or greater with plans to migrate to OC-48 later this year.

Next Generation Internet (1996)

The White House announced the “Next Generation Internet” initiative in 1996 (Zakon, 2000). The initiative has three primary goals (NGI, 1999). The first is to connect universities and national labs with high-speed networks that are 100-1000 times faster than today’s Internet. The second goal is to promote experimentation with the next

generation technologies. One such technology is real-time high quality video-conferencing. The third goal is to demonstrate advance applications that support distance education, scientific research, national security, and health care.

Internet2 (1999)

The Internet2 is a high-speed network for academic, government, and research use administered by UCAID (University Corporation for Advanced Internet Development) (Freedman, 2000). Over 180 U.S. universities lead the not-for-profit corporation with participation from more than 60 companies. The federally-led NGI described in the previous section and the university-led Internet2 are parallel and complementary efforts. Internet2 and NGI are working together in many areas. One example is the NSF NGI program that has awarded grants to 150 Internet2 universities to support connections to advanced backbone networks such as vBNS and Abilene.

Participation in the Internet2 project provides universities and other research institutions with inexpensive high-speed connections to the Internet (Bushaus, 2000). For example, the cost of an OC-3 (155-Mps) or an OC-12 (622-Mps) connection to the Internet is ten times as much as the equivalent Internet2 connection. In addition to low cost network connectivity, the Internet 2 provides an incubator for critical technologies.

Abilene Project (1999)

Abilene is another high-speed backbone network for the Internet2 project (UCAID, 2000). Developed by Qwest Communications, Nortel, and Cisco Systems, Abilene uses high-speed Sonet facilities and IP-over-Sonet routers at 2.4 Gbps (OC-48). Plans included backbone capacity increases to 9.8 Gbps (OC192) along with multicasting and QoS (Quality of Service) services. The Abilene Project, whose name came from the

1880s railroad established in Abilene, Kansas, provides an alternative to the vBNS

Internet2 backbone. Universities decide which network to use.

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Task 2

What role should government agencies (at any level) play in the management, funding, or operation of the Internet? Be sure to support your position with examples.

Government agencies should play a "hands off" role in the management, funding, and operation of the Internet. An Atlanta elementary-school girl said it well at a recent forum on the federal government's role in the Internet when she boldly proclaimed: "Since the government doesn't do a good job at a lot of things, I don't think it should be allowed to regulate the Internet" (Bacheldor, 2000). Governments at all levels are slow bureaucracies that are inherently unable to keep up with the current pace of technology and the Internet. It is unrealistic to expect government agencies to produce results proactively in the area of Internet policy.

At the federal level, government officials are involved in a variety of technology regulation and policy-making. The Federal Communications Commission (FCC), Department of Commerce, and the Federal Trade Commission are examples of agencies that regularly issue reports, hold workshops, levy fines, and rewrite technology related regulations. At the state level, governments continue to debate the issue of Internet taxation, and attorney generals file lawsuits against companies doing business over the Internet.

In response to the trend for companies to profile Internet users without their permission, many in Washington have decided that regulation is now required to protect Internet privacy. However, a recent survey found that the average citizen would prefer company self-regulation to imposed government regulation (Carvin, 2000). In fact, e-businesses, worried about what they see as rapidly rising consumer concern over

privacy as well as approaching government regulation, are tightening up their privacy policies (Vaas, 2000). Companies are drafting clear privacy policies in which consumers are in control of private information. They are also using new software that allows the personalization of content and online services while protecting consumer privacy.

Germany, with a long-running love of regulation, recently had second thoughts about a new law to tax private Internet use while at work (Rohwedder, 2000). After drawing the conclusion that private surfing at the office amounts to an extra benefit, the German Finance Ministry introduced an Internet surfing tax for people who use work computers for personal purposes. However, the decision was reversed recently after the government realized that Germany would never reach its goal to become the number one Internet location in Europe if it punished workers for acquiring Internet skills while they were at work (Stokell, 2000).

Another example of the negative effect of government regulation on the Internet is the French Minitel system. The Minitel system is a state financed and controlled telecommunications monopoly (Noam, 1997). Everyone receives a free terminal, and all state organizations contribute content to the system. At first, the system enabled France to become the undisputed world leader in Videotex. However, the system is now obsolete after rapid advances in Internet technology replaced Videotex.

In summary, government agencies should play a “hands off” role in the management, funding, and operation of the Internet. As government agencies attempt to establish rules to manage the Internet, the rules are often easily undercut since information flows rapidly on the Internet and can be routed to less restricted jurisdictions (Noam, 1997). The “hands off” approach to regulating the Internet that U.S. government

agencies have taken to date is in no small part responsible for the rapid growth of the Internet in this country. The government should only intervene when there is a clear, persistent, and serious problem that the private sector has failed to solve on its own.

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Task 3

Has the 1996 U.S. Telecommunications Act been a success or a failure?

The Telecommunications Act of 1996 covers numerous aspects of the telecommunications field. The most significant of which is the deregulation of local phone service to allow competition (Freedman, 2000). The legislation permits long-distance carriers and cable companies to provide local phone service and local telephone companies to provide long distance service. Three major provisions of the act are sections 251, 254, and 271. Section 251 allows states to regulate prices in the local access market. Section 254 extends universal service to everyone, and Section 271 provides a 14-checklist of requirements for RBOCs (Regional Bell Operating Companies) to offer long-distance service.

Has the Act been a success or failure? Overall, the Act has been a failure since it has not effectively opened up telecommunication markets to competition. Thus far, the legal profession has been the main benefactor of the Act (McChesney, 1997). After passage, the immediate effect of the legislation was to move the issue of fundamental communications policy-making off the Congressional and public agendas and install it in the hands of the Federal Communications Commission (FCC) and other administrative agencies.

This left the FCC with the impossible task of interpreting the legislation. In the case of interpreting the Act's interconnection guidelines, the FCC took the three pages of law and interpreted it into 700 pages of rules (Dorman, 1998). In fact, the typical Section 271 process involves thousands of pages of showings that include high tech performance standards (Breidenbach, 1997a). To make matters worse, the FCC's caseload had

quadrupled from 1994 to 1996, the agency's budget and staffing leveled off, and staff turnovers increased (Breidenbach, 1997b). To date, the FCC has been unable to end the monopoly of local carriers and open up local access. The RBOCs challenge every major FCC rule, and the Eighth U.S. Circuit Court of Appeals overturned two portions of the interconnection order to establish rules for local competition.

In summary, the FCC's initial charter was to protect consumers from monopoly and monopolies from competition. However, the Telecommunications Act of 1996 reversed that role. It mandated the agency to foster competition but did not provide it with the resources or the flexibility to successfully accomplish the task. In addition, the legislation left many of the controversial issues for the FCC and the courts to resolve. The Telecommunications Act of 1996 has been a failure.

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Task 4

Describe some basic philosophical differences between the view of public access to government information in the U.S. and Canada. To what can one attribute these differences?

Although United States and Canada are close democratic neighbors, each country has policies concerning public access to government information that reflect basic differences in each country's philosophy that grew during the development of their governments. For example, legislation in Canada does not exist to make government information available (Prophet, 1999). The Canadian system promotes less access due to its historical roots. The basis of the Canadian government is the British model, and secrecy has always been important to its day-to-day operation.

In addition, copyright issues illustrate the fundamental difference in philosophy between the two countries. In Canada, the government holds the copyright on government information (Nilsen, 1999). The Canadian Crown Copyright is an outgrowth of British parliamentary tradition. It prevents wide dissemination of government information through the private sector. In contrast, the United States Constitution prohibits the government from copyrighting government information. The people own the information – not the government. In fact, United States copyright law states that copyright protection does not extend to any work of the United States government.

The Canadian Treasury Board has issued a number of documents that identify government information as a corporate resource (Roberts, 1999). Unlike the United States, Canada views government information as a commodity (i.e. revenue source) rather than of a public resource. Canada's approach to information developed because of government cost recovery and restraint initiatives initiated in the mid-1980s.

In Canada, government restrictions have had a negative impact on the Canadian information industry's growth (Ardell, 1993). Government policies and legislative restrictions make access to government information difficult. In many cases, the government uses its access to taxpayer-funded information to benefit itself when competing with private sector companies. For example, British Columbia refuses to provide its database of incorporated companies to the private sector. Instead, the province offers its own online service. This policy places Canadian companies at a disadvantage when they compete to provide a complete information service to their clients.

In summary, the United States and Canada have basic philosophical differences in their views of public access to government information. These differences stem from the differing views of the United States constitution and British parliamentary tradition toward the ownership, use, and distribution of government information. The United States considers government information as a public resource, and the bias is one of more rather than less access (Prophet, 1999). In contrast, Canada sees government information as a revenue source, and the bias is one of less rather than more access.

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Task 5

Provide examples of government efforts from three countries to restrict access to the Internet. Name the three countries and explain what types of materials are being restricted, why the restrictions are in place, and how successful these restriction efforts are deemed to be.

Unlike the United States, many countries around the world limit Internet access in the name of morality or to limit subversive activities. Detailed below are three such countries.

China

The Chinese government recently issued new rules that restrict the use of the Internet by its citizens (Pottinger, 2000). The rules prohibit content that undermines the power of the government, harms China's reputation, or hinders China's goal of unification with Taiwan. In addition, Internet Service Providers (ISPs) in China must keep 60-day blocks of records on Internet content and visitors. This information is available to police if requested.

Chinese Internet users must also register with the police and agree not to use the medium for "antigovernment activities" (Oumarou & Lefort, 1998). In addition, the government knows the identity of every modem owner and monitors all modem traffic. Other restrictions make it illegal for a businessman to use the Internet to obtain strategic stock market information, and commercial sites may not receive foreign investment from unauthorized investors. In addition, the new rules prohibit Chinese Web sites from having any contact with foreign companies unless the Ministry of Information Industry grants permission.

The Chinese government restricts the use of the Internet by its citizens in order to limit subversive activities and maintain control (James, 1999). Will its efforts be

successful? Pro-democracy activist Chai Ling does not think so. Ling, a leader in the June 1989 demonstration in Tiananmen Square, believes that if China wishes to continue the rapid growth of its information technology (IT) capabilities it must eliminate current restrictions. China's IT and e-commerce growth will be stunted if it does not.

Saudi Arabia

The government of Saudi Arabia restricts Internet access to limit public access to pornography and undesirable online data (HRW, 1999). A standing committee exists to protect Saudi society from Internet content that violates Islam. Restricted materials include those that corrupt or harm Muslim values, tradition, and culture.

The efforts of the Saudi government to restrict Internet access have been very effective for two reasons (HRW, 1999). First, authorities have divulged few details of the technology used to block undesirable content. Second, and most important, officials have chosen to allow only those sites that are desirable and officially sanctioned. All other sites are inaccessible by default. Therefore, Web filtering is not an issue as was the case in Singapore. In addition, Saudi users who attempt to access banned sites receive warnings that the government is logging their illegal attempts.

Singapore

Until recently, Singapore was another example of a country that restricted Internet access (ACLU, 1996). In 1996, Singapore required its few ISPs to place strict controls on the content allowed into the country. It also restricted the maximum direct foreign equity on Internet licenses. The intent of the restrictions was to preserve Asian values by restricting the flow of Western thought and values entering the country via the Internet (Dillon, 1997).

However, Singapore officials conceded recently that technological advances have outstripped their ability to maintain a firewall capable of blocking unsavory Western thoughts and values (Iritani, 2000). The 100 sites that the country still monitors are purely symbolic, and government officials acknowledge any well-informed teenager can access them. Among the 100 sites is Playboy.com, which the officials consider unsavory because of sex, violence, and material offensive to religious or ethnic groups.

In a demonstration of Singapore's softening on the issue of Internet restrictions, the parliament passed a law to ensure that ISPs were not liable for a customer's Internet abuse (Rajendran, 1999). In addition, the Telecommunication Authority of Singapore (TAS) now allows all foreign entities to compete on an equal footing and with no Internet market restrictions. In the past, there was a maximum direct foreign equity limit of 49 percent.

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