International Communications Standards: A Comparative Study of the ITU and ISOC as Regimes

Thomas E. Creely, Jr.

Thesis submitted to Faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

Master of Arts
in
Political Science

Timothy W. Luke, Chair
Douglas A. Borer
Scott G. Nelson

March 8, 2001
Blacksburg, Virginia

Keywords: International Telecommunications Union, Internet Society, Regimes, ITU, ISOC

Abstract

The proliferation of the Internet has created a need for leadership, which has been filled by the Internet Society (ISOC). This study examines ISOC through the lens of regime theory to explain its role. Regime theory is discussed at length in order to create an applicable model of a regime. This model is grounded in the transnationalists school of thought, originating in the 1970s. The regime model is informed by the work of Keohane and Nye, and Chayes and Chayes. The model is applied to three regimes throughout the study, the World Trade Organization (WTO), International Telecommunications Union (ITU), and ISOC. In order to study ISOC, the ITU is examined to form a basis of comparison for telecommunications regimes. The ITU was the first modern international organization and has much in common with ISOC. The ITU is examined using the regime model to facilitate comparison between the ITU and ISOC regimes. As a result of this study, the findings show that ISOC is not a typical state-centric regime. However, it does create the potential for a new open and democratic regime style. ISOC sets standards for the Internet and has taken the responsibility for maintaining it. The potential of ISOC to grow with the Internet and develop a new form of international leadership is demonstrated through this analysis.

Table of Contents:

Introduction:

The world is constantly shrinking as new developments in technology increase the speed at which information travels from one point to another. The ability to communicate instantly over the Internet has made people dependent upon email and the World Wide Web. The nations of the world have been connected via the Internet, but what is the Internet? How does the Internet connect the world, and who controls the interconnection of the world? The resources offered by the Internet have created a better-informed and connected global community. To many the Internet is a recent novelty that opens unlimited possibilities for communication, but this growing institution has a complex history. The Internet is usually thought to be a recent innovation, but it has been under development since the 1960s. Over the past half century the Internet has had an evolving administration under varying government agencies and private organizations, but the Internet began as a means of communication for U.S. defense researchers. Internationally, the Internet has differed in its development from country to country and network to network. As a result of international diversity in network development, the architecture of the Internet represents a power struggle of standards clearly dominated by the United States through projects like the U. S. Defense Advanced Research Projects Agency network (ARPANET). "ARPANET was a testing ground for innovative concepts such as packet switching, distributed topology, and routing, and the connection of heterogeneous computer systems."[1] The development and research on ARPANET in the 1960s and 1970s allowed for the creation of what is known today as the Internet.

The Internet has emerged from a tangle of competing networks that overlap each other in function and design yet differ in many ways. Like the early days of telegraph networks, the operational systems of the Internet have lacked an international set of standards until recently. The administrators of the Internet have had to create a method for all those who wish to communicate via the Internet. The existence of the Internet throughout the US and the world leaves the question, who is responsible for the creation and coordination of the standards that have allowed for the creation of this global network? Is the coordinator of the Internet an institution, and if so what type of

---

[1] Janet Abbate, *From ARPANET to Internet: A History of ARPA-Sponsored Computer Networks, 1966-1988*. (Ann Arbor: U. M. I., 1994), iv.

institution? This study will examine these questions and show that the Internet is governed by an international regime that has arisen through non-traditional methods. Nonetheless, it successfully provides coordination and standards for seamless global communication. Before examining these questions and the coordination of the Internet it is necessary to look at the history of the Internet to understand how it has developed into its current state.

This study examines theories of international relations, organizations and treaties in order to understand the administration and coordination of the Internet. The study is primarily informed through extensive use of regime theory using the work of Robert Keohane and Joseph Nye. In order to understand regime theory it is necessary to examine its history and development out of the transnationalist school of the 1970s as a reaction to the faults of realism. Regime theory is discussed to look at adaptations beyond state power to ask how regimes can be a product of private organizations. The study then applies regime theory to the Internet Society (ISOC), the foremost coordinator on the Internet. To apply regime theory to ISOC, it is necessary to look at the history of regimes in telecommunications comparatively. The best case for examining regimes in telecommunications along such comparative lines is the International Telecommunications Union (ITU). The theories of Keohane and Nye are adapted to meet the needs of this research so that different types of institutional regimes can be distinguished. The various regimes include open, closed and monitoring regimes. It is necessary to examine different theories of international organization (IO) especially from the perspective of international non-governmental organizations (INGO) since regime theory is tied closely to the development of IOs.[2]

This comparative study of telecommunications regimes, between the ITU and ISOC, while focused, requires a broad range of information. Much of the research comes from historical accounts of the development of the technology and the founding and growth of the organizations. Additional material comes from the study of the

[2] Paul Diehl, ed. *Politics of International Organizations: Patterns and Insights.* (Chicago: Dorsey Press 1989)
Thomas Van Dervort, *International Law and Organization: An Introduction.* (Thousand Oaks: Sage, 1998), 488.

writings and interpretations of regime theory. The advent of the Internet, of course, has aided researchers with accessibility to information related to the development of the organizations that are studied here. Yet, much of the information available on the Internet is not reliable. The majority of the information on the subject of this study is available via the Internet, but precautions have been taken here to ascertain that the information is reliable and relevant to the research.

Chapter 1 is an in-depth discussion of regime theory laying the foundation for the rest of the thesis. This chapter develops regime theory and its components to define the traditional understanding of regimes and whether or not a regime can exist in other non-traditional forms. This chapter studies a regime that is not related to telecommunications, the World Trade Organization (WTO), to illustrate an example of a widely agreed upon regime. Having laid this foundation for understanding regime theory, it is possible to examine regimes in telecommunications and begin the comparative analysis of the ITU and ISOC to determine if ISOC is a regime.

The second chapter examines the ITU. This chapter investigates the history of telecommunications and explores how the ITU came to be. After an in-depth discussion of the development of the ITU, the organization is examined through the lenses of regime theory developed in Chapter 1. The discourse and definition of a regime helps to further analyze the ITU in ways that will create a common thread to compare and contrast it with ISOC. This chapter concludes with the reaffirmation that the ITU is a regime.

Chapter 3 is a detailed study of ISOC and its status as an organization. This chapter culminates the development of regime theory in this study. The chapter continues the discussion of the Internet's development to better understand the history of ISOC, its development and the personalities who created it. Following the discussion of the Internet, ISOC is examined by what it does both domestically and internationally. This chapter seeks to prove that ISOC acts like a regime even though it does not strictly fit the model of a regime discussed in Chapter 1.

The fourth chapter brings together the ITU and ISOC in a comparative analysis of the two institutions. In this chapter the institutions are examined to find commonalities and differences in order to draw conclusions about how they work internationally and function as institutions, while both facilitating communication internationally. This chapter draws to a close the discussion of regimes and helps to show that regimes are not homogenous.

The conclusion examines the relationship that exists between the two institutions, and discusses how the ITU and ISOC are working to create global standards in a responsible way. In particular, it examines the joint ITU and ISOC efforts to foster the development of communication and what long-term benefits may arise from their relationship. The study contributes to the small, but growing body of non-technical socially oriented literature about the Internet. This research is necessary for helping to understand the Internet standards creation and implementation process through preexisting theories of organizations and regimes. Its conclusions relate new organizations to those organizations that are already well established in the international system, creating, first, a common basis of comparison for future research of the Internet as it develops and, second, adding to the body of literature surrounding the changing face of regimes.

Introduction to Computer Network History:

ARPANET was the first notable packet-switching computer network. ARPANET created a way for the Defense Department to communicate with academic and research institutions around the country. At the same time as ARPANET was being built, other networks around the world were being developed with different standards of communication. Through the 1970s and into the 1980s, there was considerable debate about how to communicate between networks. In the U.S., the rise of networks led to a call by the academic community for more inclusion in ARPANET. ARPANET evolved into the National Science Foundation network (NSFNET), which created a way for more universities to communicate with one another. NSFNET arose in the mid 1980s as the U.S. military split off its networks into MILNET. NSFNET attempted to create the most cost effective possibilities for network access and make them available to academic institutions of all sizes. During the time period that NSFNET was in existence, the development of the gopher system, FTP and early web browsers came about. The development of the web browser and Hyper Text Markup Language (HTML) brought about a profound change in the knowledge needed to obtain the information on NSFNET.

Throughout the 1980s, private networks also arose in the US and elsewhere, and these private networks were very prevalent in large corporations and universities. The 1980s also saw the rise to the first generation of Internet service providers (ISP). The ISPs of the 1980s, of course, were still, predominately, closed networks such as Prodigy and CompuServe. These networks provided email services and created electronic communities, but then were still internalized to their own subscribers for the most part. The 1990s were a time of significant growth for the Internet, but at the same time there was a real increase in the complexity of its management. In the early 1990s, the National Science Foundation contracted the tasks of registering and maintaining domain names to a Virginia based corporation known as Network Solutions, Inc. (NSI). In 1992, Congress commercialized the Internet, which opened it for business and moved it beyond the academic and research environment. In 1992, ISOC also was founded to administer the standards process of the Internet since the government no longer "controlled" it. The Internet grew steadily through the early 1990s, but in 1995 the Internet went into a growth boom. The reasons for this growth include a few factors. The first factor is the lowered cost of personal computing. Second, computers became more user friendly with the advent of newer operating systems and web browsers. Since 1995 the Internet has continued to grow by leaps and bounds each quarter as the profits and stock prices of Internet related companies rose. The most recent shift in the power over the Internet occurred in 1998 with the creation of the Internet Corporation for Assigned Names and Numbers (ICANN) created by ISOC and the U.S. government. ICANN assumed control of the naming process in the Internet, taking over the job of NSI following a government anti-trust suit against NSI. Currently, there are many different organizations involved in the varied aspects of the administration of the Internet, and the administrative process is open to all those that wish to contribute to this unique technical formation. All of this work is the result of efforts made by ISOC as a coordinator.

The Internet Society (ISOC) has taken a leadership role in administration of the Internet and for that reason it will be a central focus of this study. This analysis will reconsider ISOC through the lens of regime theory to examine how it creates and maintains standards on the Internet and to determine if ISOC is a regime. In order to determine if ISOC is a regime, it is necessary to first define what is meant by the term regime and then examine other examples of regimes that exist. This comparison, in turn, will better illustrate what a regime is, and help to determine if ISOC either is a regime or a different type of organization.

Chapter One: Contemporary Regime Theory

International relations have become multifaceted with the growth of international institutions and organizations since 1945, but state-to-state relations still play a large role. As the bipolar world of the Cold War has slid by the way side, some see realism declining as a popular theory to explain state relations.[3] In order to explain that which realism could not, the study of regime theory has risen with the continued growth of international organizations.[4] Regime theory, in short, is the idea that issues are controlled and resolved through "networks of rules, norms, and procedures that regularize behavior and control its effects"[5] embodied in a governing arrangement. Regimes arose out of the transnationalist school of thought in the 1970s.[6] The transnationalists found that realism no longer explained interaction between states. Realism viewed states as independent closed entities and viewed state relationships through power relationships. Realists believe that states act independently for their own best interest and that international system is anarchic.[7] As a result of state independence, Realists believed states were, in away, immune to outside influence.[8] Transnationalists began to see that states were not immune to outside influence, and that state borders were actually porous. Transnationalists took note of the ever-increasing interaction between different states and non-state actors through organizations and growing reliance upon each other. Interdependence has existed as long as trade has moved across borders. The growth of interdependence between states led many to believe that the likelihood of war between dependent states was less. The idea of interdependency suggested states would become so dependent upon each other that war, or anything that threatened relations between dependent states, would be against the best interests of the state. That degree of dependency discussed is known as complex interdependence, and complex

[3]Samuel P. Huntington, "The Clash of Civilizations?" *Foreign Affairs,*(New York: Council on Foreign Relations, 1993), vol. 72:3.
[4] Ronald Mitchell, "Regime Design Matters: Intentional Oil Pollution and Treaty Compliance." *International Organization*, (Boston: The MIT Press, 1994) vol. 48:3. 428
[5]Robert Keohane, and Joseph Nye, *Power and Interdependence: World Politics in Transition.* (Boston: Little, Brown, & Company, 1977), 19.
[6] Abram Chayes, and Antonia Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements.* (Cambridge: Harvard University Press, 1995), 3.
[7] Ronald Mitchell, "Regime Design Matters: Intentional Oil Pollution and Treaty Compliance." *International Organization*, (Boston: The MIT Press, 1994) vol. 48:3. 428
[8] Robert Keohane, and Joseph Nye, *Power and Interdependence: World Politics in Transition.* (Boston: Little, Brown, & Company, 1977), 23.

interdependence exists in many different realms of international relations – ranging across the realms of the economic, political, environmental, and social.[9]

1.1 Complex Interdependence:

Complex interdependence has three traits according to Keohane and Nye. The first trait of complex interdependence is "multiple channels".[10] The term multiple channels is used to describe how societies are interconnected. Interconnectedness describes the many methods that people and governments have to communicate and exchange. Interconnectedness has many forms. Some channels of communication come from direct personal contact and others from less personal contact through telecommunications and international organizations.[11] Beyond the strict use of multiple channels of communication defined by Keohane and Nye, one can use a broader interpretation and look toward any form of exchange, including informational, ideological, or economic exchange. The connections that both individuals and the state possess remove the limitations to understanding and interdependence that exist under realist notions of state relations. The second trait of complex interdependence is "the absence of hierarchy among issues."[12] "This *absence of hierarchy among issues* means, among other things, that military security does not consistently dominate the agenda."[13] The idea that military security is not always the dominant issue among states is in stark contrast to what realists believe, because they maintain the military is the most important political tool for maintaining international peace and power. The importance of recognizing that the military is not always the apex of state power in international relations is the recognition that other issues are sometimes more important as a result of interdependence. The absence of hierarchy can be seen all over the world as economic growth and development issues have become more important in international relations. The third trait of complex interdependence is a shift in the use of military force. Through complex interdependence the use of military force is no longer deployed to expand territorial empires or to assist in the accumulation of wealth. According to Keohane and Nye, militaries are not used against those who complex interdependence is great with the

[9] *Ibid.*, 8
[10] *Ibid.*, 24
[11] *Ibid.*, 24-5
[12] *Ibid.*, 25

state in question of using force. This reason for this shift in the use of military power is very logical. A state does not want to threaten the existence of another state that it is dependent upon because it would be against its own self-interest. As a result of states acting in their own self-interest, there are fewer wars and states are more disposed to resolve conflicts by other means.[14]

The complex interdependence military model was originally developed during the Cold War, and it is primarily concerned with the use of force between states in the same alliance such as NATO. Yet, it does not rule out military force against opposing alliances. In the post-Cold War era, the third factor of complex interdependence has grown even more prominent as military, regional, and international cooperation have grown.[15] One use of military force that reflects this model is the Persian Gulf War against Iraq. The Iraqi invasion of Kuwait affected the interest of the states that trade with Kuwait. The states, whose interests were threatened due to their dependence on Kuwait, used military force to restore stability and the sovereignty of Kuwait to restore the interdependent flow of goods and services between those states, primarily led to Kuwaiti oil. This use of military force is an example of the redirected use of military force in complex interdependence. The dependence of so many states, especially the U.S., on Kuwaiti oil made it necessary for those states to restore interdependence among the allied states and Kuwait.

Complex interdependence is the basis of regime theory. Complex interdependence created the need for states to solve disputes without using military force since they were dependent upon each other.[16] In order to create a means of conflict resolution for states, networks of norms were created to protect the viability and voice of each state. Norms are the ideas and principles that are in place, which dictate how interdependent actors must conduct themselves.[17] The creation of norms between states

---

[13] *Ibid.*, 25
[14] *Ibid.*, 25
[15] Thomas Weiss, Forsythe, and Coate, *The United Nations and Changing World Politic.* (Oxford: Westview Press, 1994), 61-63.
[16] Robert Keohane, and Joseph Nye, *Power and Interdependence: World Politics in Transition.* (Boston: Little, Brown, & Company, 1977), 8

[17] Abram Chayes, and Antonia Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements.* (Cambridge: Harvard University Press, 1995), 113

led to the need for an objective means of governance within the norms. Norms existed between states initially in the form of treaties, but grew as the scope of issues grew and the number of states involved rose. As a result of growth in the international systems, it became necessary to create bodies to govern and coordinate the different aspects of international relations and monitor compliance with agreed upon norms. The resulting institutions that arose from the need for norm governance were regimes. International regimes are "sets of governing arrangements that affect relationships of interdependence." [18] Krasner views regimes as institutions made of principles, norms, rules, and decision-making procedures concerned about a specific sector or issue.[19] The two definitions are similar, giving the general notion that a regime exists to govern a certain subject by implementing norms and standards in order to manage the actions of different actors in relation to that subject. The definitions of regimes do not specify that a regime is necessarily a state-centric institution. The most important aspect of a regime is that it is an organization based on norms and principles, rather than the composition of actors in the regime. Puchala and Hopkins believe that, "For every political system, the United Nations, the United States, New York City, or the American Political Science Association, there is a corresponding regime."[20] This insight brings to light that there is a regime for all types of organizations, and not just governments. For this study, the regime will be limited to international organizations, but not regimes that are limited to state actors.

Complex interdependence has existed as long as states have been trading with each other as each state specializes in what it produces best, but regimes are a modern phenomenon. International regimes began to grow in number, prominence, and power following World War II. The post war period saw the rise of many different international agreements that promoted expanded interdependence among states, especially in the economic realm. Bretton Woods was a meeting of the war victors to determine the processes and institutions for the creation of a new world economic and political system

---

[18] Robert Keohane, and Joseph Nye, *Power and Interdependence: World Politics in Transition.* (Boston: Little, Brown, & Company, 1977), 19

[19] Stephen Krasner, "Structural causes and regime consequences: regimes as intervening variables." *International Regimes*. (Ithaca: Cornell University Press, 1983), 2

[20] Donald Puchala, and Hopkins, "International regimes: lessons from inductive analysis." *International Regimes.* (Ithaca: Cornell University Press, 1983), 62.

as well as the means for preventing global economic depression and war of such devastation from ever developing again. The product of Bretton Woods was a set of norms and principles that were to be applied to many different aspects of international relations, including norms against protectionist trade measures and a commitment to free trade. The resulting institutions from the norms set at Bretton Woods have redefined the world.[21] International regimes are numerous in the world and will continue to grow in number as complex interdependence between states increases therefore creating a need for mediation and governance of different issues of interdependence. Since Bretton Woods, institutions created following WWII, such as the International Monetary Fund (IMF), United Nations, GATT/ WTO, and the World Bank, have grown in size, power, and scope as they address a variety of issues in an ever-changing world.

1.2 Regime Framework:

In order to understand how regimes work, it is necessary to extrapolate a process through which regimes can be analyzed. The regime analysis process used here explores different aspects of norm creation, implementation, and management in a regime based on the work of Chayes and Chayes in the realm of international regulatory agreements.

The traits that will be used to examine and compare regimes are broken into five steps based on regimes created from international regulatory agreements discussed by Chayes and Chayes.[22] The *first* trait that must be present for a regime to form is norms and principles. Thus far in this study norms and principles have been the centerpiece of regimes, this is because without norms and principles the regime has no purpose. Norms and principles represent the ideas that the regime is created to embody and protect. As discussed norms are the basis of regimes according to Keohane and Nye, therefore they are the most essential to examine in the study of any regime. Norms empower the regime to make changes and encourage behavior modification. Since norms and principles are the basis of a regime, "changes in principles and norms are changes of the regime

---

[21] Benjamin Cohen, "Balance of payments financing: evolution of a regime." *International Regimes*. (Ithaca: Cornell University Press, 1983), 323-325.

[22] Abram Chayes, and Antonia Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements.* (Cambridge: Harvard University Press, 1995), Variation of the ideas set forth in Part II "Towards a Strategy for Managing Compliance." Chapters 5-8 in Part II represent different aspects of a regime combining to make a whole. These chapters provide a basis for measuring and comparing regimes.

itself."[23] Without norms there would be no reason for regimes to exist because there would be no standards to uphold.[24] When examining a regime, it is necessary to examine the norms that are in place to understand the purpose of the regime and its success in enforcing its norms.

The *second* trait of a regime to be analyzed is transparency. A regime that makes all information related to norm enforcement and management accessible for examination by both the members of the regime and the enforcing institution itself has transparency. Transparency is important to maintain accountability and legitimacy in a regime. According to Chayes and Chayes transparency exist when "(1) the meanings of norms, rules, and procedures established by the treaty and practice of the regime, and (2) the policies and activities of parties to treaty and of any central organs of the regime as to matters relevant to treaty compliance and regime efficacy."[25] The definition by Chayes and Chayes identifies regimes formed as a result of treaties, but the definition applies to all regimes. It is important that all aspects of a regime are understood to facilitate coordination through understanding. Chayes and Chayes believe that transparency facilitates three aspects to regime proliferation, coordination, reassurance and deterrence.[26] Transparency allows all aspects of the regime to be scrutinized better, enabling the regime and its members to uphold its norms and principles. While transparency is applicable to all in the regime, it is particularly important for the regime's governing body. Without transparency, the incentive to properly enforce norms is lessened. Therefore, reassurance might not be created for the members that are upholding the norms, and then deterrence would be created to not act in accordance with the regime norms. Transparency can best be viewed as a method of auditing. It allows for the members of the regime to view the records of the institution, while creating a necessity for proper record keeping, and discouraging subjective norm enforcement or

[23] Stephen Krasner, "Structural causes and regime consequences: regimes as intervening variables." *International Regimes*. (Ithaca: Cornell University Press, 1983), 4.
[24] Abram Chayes, and Antonia Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements.* (Cambridge: Harvard University Press, 1995), 113
[25] *Ibid.,* 135
[26] *Ibid.,* 135

corruption.[27] Related to transparency are the methods for gathering information about the actors and norms of the regime through reporting and data collection.

Reporting and data collection is the *third* trait in regime analysis. The primary concern of reporting and data collection is the retrieval of information about regime actors to examine norm adherence. For the purposes of this discussion, reporting and data collection are combined into one term, reporting, to cover all forms of information retrieval. Reporting is concerned more with the actions of the regime members. Reporting is used by the regime for gaining information on adherence to the norms of the regime by the member state or actor. The methods of reporting are important to maintaining a regime. Many regimes enforce reporting through self-reporting. Self-reporting is more cost effective and efficient for the regime. Another important aspect of self-reporting is that it does not infringe on the sovereignty of the regime member.[28] Self-reporting is the first step toward checking norm compliance; if a regime actor refuses to submit its report or its report is sub par then it raises suspicion of non-compliance with the norms of the regime.[29] Self-reporting may give the actor an opportunity to manipulate information reported to the regime, but such action is taken in to account by regimes and is counteracted in the processes discussed in step four. Within reporting some verification can take place since the other members of the regime may have their own information about norm compliance which might negate that which was reported by the regime member. If an actor reports false data, they are not aware of the information already held by other actors therefore must submit accurate data.[30] Reporting gives the regime the ability to investigate adherence to norms. Therefore, this is crucial in reinforcing the legitimacy of the regime.[31]

The *fourth* trait in this analysis is verification and monitoring by regimes. Verification and monitoring is the process of establishing legitimacy and creditability to the data that is gathered on a regime member including self-reported data. "Verification

[27] *Ibid*., 135-6
[28] *Ibid.*, 154
[29] *Ibid.*, 155
[30] *Ibid*., 162-163. Chayes and Chayes use an excellent example with the SALT II treaty and the verification of self-reported data compared with intelligence data.
[31] *Ibid*., 162, 166

is the most demanding aspect of achieving transparency."[32] Verification aids in achieving transparency through the conformation of the data that is submitted to the regime giving reassurance to the members and deterring norm non-conformity.[33] The importance of the verification process is to prevent inappropriate use of the data collection process and to make the norm enforcement process as objective as possible.[34] The methods for verification and monitoring vary with the norms of the regime, and the environmental regime might use independent testing to compare emissions reports from companies or countries, or weapons monitors could use satellite imagery to verify data from its members.[35] The verification and monitoring system is very important to a regime as it adds or takes away credibility of the data collected from different sources to allow the greatest understanding of all the actions by all of the actors in a regime.

The final trait of a regime in the adapted Chayes and Chayes model is assessment. Assessment is the final analysis of verified data collected by the regime and the action that follows. The assessment process determines whether or not norms have been upheld, and, if not, to what degree norms have not been followed. The assessment process is used to determine the action that should be taken to better maintain the regime and better uphold the norms and principles of the regime. The assessment process is different for every regime depending on the nature of the regime and the data collected. The assessment feature of this analysis could be equated to the decision-making role of a regime since it allows for an examination of regime and actor policy. The action of a regime might be punitive action or policy changes to further protect the legitimacy of the norms in the regime.[36] The steps discussed so far compound each other to provide the information needed for the assessment process so that the decisions made by the regime are well informed and take into account all aspects of norm management. With this discussion of the steps for norms enforcement, it is necessary to examine the steps in the evolution of a regime. One major regime that emerged following WWII was the Global Agreement on Tariffs and Trade (GATT), and it has evolved into a strong regime. It is used here to briefly illustrate the steps listed above.

---

[32] *Ibid.*, 174
[33] *Ibid.*, 175
[34] *Ibid.*, 174
[35] *Ibid.*, 183

1.3 GATT/WTO and The Regime Framework:

Today, the World Trade Organization (WTO) works to insure global free trade, but this powerful organization began as a regime to prevent a repetition of the trade policies that brought about the Great Depression. The regime was created to prevent another depression, and it embodies all aspects of an international regime. The GATT was created to maintain and set economic standards to reduce protectionist trade tactics between states after the failure of the Havana Charter institution of the International Trade Organization (ITO).[37] The US and the UK planned for the ITO as WWII came to a close. The ITO was supposed to help create a new economy for the world that would seek to open trade between states as well as reform many other economic sectors. The ITO failed since the US government chose not to ratify its own proposals for the ITO organization. As a result of the collapse of the ITO implementation, the GATT, originally a temporary arrangement between the U.S. and U.K, was expanded.[38] Due to its temporary design, GATT was far less specific than the ITO and its norms were predominately focused on trade issues of tariffs and non-tariff barriers (NTB), such as import quotas. GATT existed as a global trade regime until 1994, when in the Uruguay Round of talks, GATT officially became the WTO.[39] The evolution from GATT to the WTO brought more of the original goals of the ITO back to the institution. The WTO brought a greater ability to monitor and enforce the norms of the institution through a more robust dispute resolution system, which has yet to gain true legitimacy. The norms of GATT were no longer sufficient for the greater degree of complex interdependence and trade following the fall of the Soviet Union and the end of the Cold War. This change in the political and economic landscape of the world paved the way for the transition from the GATT to the WTO. The WTO to this day is probably one of the world's most powerful and successful regimes.[40] As a result of the WTO's success as a regime, it will be used as a model to aid in the understanding of a regime and its functions. This

---

[36] *Ibid.*, 229

[37] Jock Finlayson, and Zacher, "The GATT and The Regulation of Trade Barriers: Regime Dynamics and Functions". *Politics of International Organizations: Patterns and Insights.* (Chicago: Dorsey Press,1989), 259

[38] *Ibid*.

[39] Abram Chayes, and Antonia Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements.* (Cambridge: Harvard University Press, 1995), 220

[40] *Ibid.*, 24

analysis of GATT/WTO examines how a regime can foster the growth of complex interdependence, and it shows how it maintains norms and standards through the framework discussed above.

The WTO in its current forms is an infant institution that continues to grow and develop. Unlike the GATT, which met periodically in rounds, the WTO is a full time international institution. The WTO seeks to promote open trade policies, but also address issues of service and agriculture that were not addressed by the GATT.[41] The GATT/WTO maintain a set of norms based on the principle that free trade across borders will increase interdependence and will help the economies of the world to prosper through specialization and comparative advantage. Specialization and comparative advantage should make the member states more interdependent, because they then can rely on each other to produce the goods and services that cannot be produced efficiently in the domestic market. The result of specialization is that each country produces what they are most efficient at making and trades with other countries for the other goods and services.

GATT/WTO norms are both substantive and procedural. The following quote from Finlayson and Zacher explains the division of norms in the GATT/WTO. "The substantive norms concern nondiscrimination, liberalization, reciprocity, the right to take "safe-guard" action, economic development. The procedural norms relate to multilateralism and the role of states with "major interests" in trade relations."[42] The substantive norms in the WTO represent the goals of the WTO, while the procedural norms are the guidelines for the WTO to function as a regime. The procedural norms of the GATT and the WTO represent the steps attain to norm enforcement including norms for transparency and monitoring, which are key components of a regime.

Since GATT was formed, there have been many debates and struggles over what norms should be created. The agenda for the US included provisions for transparency in the GATT, but through compromise the word "transparency" does not appear in the

[41] *Ibid*., 218-220
[42] Jock Finlayson, and Zacher, "The GATT and The Regulation of Trade Barriers: Regime Dynamics and Functions". *Politics of International Organizations: Patterns and Insights.* (Chicago: Dorsey Press,1989), 261

GATT.[43] Article X of the GATT describes a loose version of transparency for GATT members that seemed unimportant at the time, but has played a stronger role as the GATT has developed as a regime. The evolution from GATT to WTO brought increased transparency within its regime through the creation of the WTO Trade Policy Review Mechanism (TPRM).[44] Transparency is considered a "pillar of multilateral trading system"[45] since states are self-interested actors. Transparency in international trade helps to ensure that protectionist measures are not being used to prop up domestic industries. Protectionist measures such as NTBs would hinder the norms that the WTO promotes or give any country using such measures a market advantage.

The WTO has not developed the capacity to monitor each country. Instead members participate by self-reporting. Self-reporting is an efficient method for gathering data without the added cost and bureaucracy of having full time independent reporting and monitoring for the regime. Many regimes currently use self-reporting as their method of data gathering.[46] Self-reporting in the WTO seems as if it would not be stringent enough to maintain accurate information about the members, but the information has to meet the standards set in place through the organizational membership. Reported data has many different aspect that give those who examine it a full picture of the trade practices of the member countries.[47]

The verification processes in the WTO functions through the process of data reporting. The WTO examines the data of each state that submits their trade information. Therefore, they look at the data of the trading partners from each state.[48] Basic accounting would show if data between two states that trade together is not similar about their trade relations. If there is a discrepancy in trade reporting between two countries then there are reasons to question the reporting by one of the trading states. The trade between two states might be similar to a ledger with debits and credits, which must balance out. As a result of seeing trade as a ledger, the data collection process is self-checking between states in the WTO. The majority of the verification and monitoring

---

[43]Sylvia Ostry, "Reinforcing the WTO." *Occasional Paper 56*. (Washington, D.C: Group of Thirty, 1998)
[44] *Ibid.,* 16
[45] *Ibid.,* 14
[46] Chayes, A., and Chayes A. H. 1995. *The New Sovereignty: Compliance with International Regulatory Agreements.* Cambridge: Harvard University Press. p. 23
[47] *Ibid.,* 167

process comes from the states themselves. The WTO gives the members the ability to raise questions of contention with other states within the organization. States monitor each other through their own trade relations, if a state acts in a way that is not in agreement with WTO standards then the other state can take the violator to the dispute resolution process.[49]

The dispute resolution process of the WTO promotes monitoring, but also acts as an assessment process. The dispute resolution system is considered the most successful institution of its kind.[50] The dispute resolution process is similar to arbitration. The states that have a dispute meet with WTO officials to resolve the problems that exist between them. The final decision of the officials is legally binding under international law and can only be overturned by the unanimous vote of the WTO members. The disputes resolution system is method of assessment in place to examine trade problems, and take the necessary actions needed to fix those problems that exist. The dispute resolution system creates a way that in addition to solving trade problems reviews the rules that makes up the WTO. Review of the WTO through the dispute resolution process allows for the weaknesses of the organization to be seen and for improvements to be made upon them.[51]

The violation of norms of the WTO by states is difficult to monitor since the WTO is in its infancy, so it and still developing the mechanisms necessary to better monitor its members. In spite of the limits of the WTO, it has been very successful at its goal of reducing barriers to trade around the world. Since the WTO was conceived as the GATT, it has maintained and enforced its norms. Throughout the GATT/WTO's history, it has created a regime of considerable power and influence. The WTO is an example of an effective international regime to provide a model that will be used throughout this research.[52]

---

[48] *Ibid.*, 167
[49] Sylvia Ostry, "Reinforcing the WTO." *Occasional Paper 56*. (Washington, D.C: Group of Thirty, 1998)
[50] Abram Chayes, and Antonia Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements.* (Cambridge: Harvard University Press, 1995), 24, 218
[51] Thomas Van Dervort, *International Law and Organization: An Introduction.* (Thousand Oaks: Sage, 1998), 434-436
[52] Multiple sources used in this work discuss the role of GATT and WTO as regimes.
Abram Chayes, and Antonia Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements.* (Cambridge: Harvard University Press, 1995),

1.4 Conclusion:

This example also helps to give a framework that allows for a better analysis of different institutions. Using the regime analysis developed here, and the broader notions of regimes that have been discussed in this chapter, will allow for a better assessment of norm-based institutions that act in the international realm.

Although the development of regime theory predominately dealt with relationships between states, regime theory can be applied to many different types of institutions. The notion of a regime is an evolving idea that changes in the world create a need for the management of new norms and mediation between actors. Given the developments that change society with each passing year, regimes have continued to grow in importance as a normative force beyond that of state actors. According to Haufeler, "Private sector actors may construct independent international regimes, or play a relatively equal role with states within a regime of mixed 'parentage'."[53] The ability of private sector actors to form regimes can easily be seen in both business and in the efforts of NGOs. A typical regime in business might be an oligopoly.[54] Oligopolies can be considered regimes because they concentrate the power of a few corporations to control market competition. In order to control market competition, it is important that each member of the oligopoly maintain the same standards so that prices stay the same and no product is better than the competitors. The oligopoly allows the member corporations to maintain high prices so that they all maximize their profits. Other non-state actors have the ability to form regimes also. Many human rights organizations have effected change in different social issues around the world. NGOs have much less power to effect change, but they have been successful at establishing norms and standards for many different issues ranging from the environment and labor to planned parenthood.[55] Many of the issues that NGOs take on help to create standards that are later adopted by international organizations such as the United Nations. Many times, the actions of NGOs

---

Jock Finlayson, and Zacher, "The GATT and The Regulation of Trade Barriers: Regime Dynamics and Functions". *Politics of International Organizations: Patterns and Insights.* (Chicago: Dorsey Press,1989), Sylvia Ostry, "Reinforcing the WTO." *Occasional Paper 56*. (Washington, D.C: Group of Thirty, 1998) Thomas Van Dervort, *International Law and Organization: An Introduction.* (Thousand Oaks: Sage, 1998),

[53] Virginia Haufeler, "Crossing the Boundary between Public and Private: International Regime and Non-State Actors", *Regime Theory and International Relations*. (Oxford: Clarendaon Press, 1993), 95

[54] *Ibid.,* 96

[55] *Ibid.,* 97

do not directly create regimes that create and maintain standards and norms. NGOs are usually too weak to have the needed influence to enforce their norms and beliefs. The important aspect about NGOs is that they have the ability to draw attention to issues of importance and help to create norms. The ability for a regime to exist outside of state involvement is hard to imagine unless it is business oriented. In spite of the limited power of NGOs, they do effect changes in policy and the world. Therefore, have the potential to have greater power as regimes continue to evolve and develop. There are opponents to regime theory who believe that is an oversimplified all encompassing model, state centric, static, and a fad.[56] The critics of regime theory are correct to some degree. Regime theory, unless well defined, is very broad and can characterize almost any organization. This study uses regime theory in a way that addresses what some view as the faults of regime theory. Since this critique was written, regime theory has continued to be studied as a method for explaining international agreements and organizations. The regime theory in this study has been adapted from the earlier state centric and static notions to fit into a post-Cold War environment that has seen much growth in complex interdependence bet described through regime theory.

The next two chapters will take the ideas of regime theory laid out in this chapter to examine two different institutions. In each case the steps of norm creation, enforcement, and management will be utilized to determine whether or not it is a regime under the definitions discussed here. The two cases covered in the following chapter are the International Telecommunications Union and the Internet Society. The two cases have much in common as they have both developed in order to address that growth of new methods of technology, but have many differences too from their age, membership, and the institution themselves. The comparison of these two cases will allow for a better understanding of different aspects of communication policy in both the emerging technologies and the first forms of telecommunications.

[56] Susan Strange, "Cave! hic dragones: a critique of regime theory." *International Regimes.* (Ithaca: Cornell University Press, 1983)

Chapter 2: Case One: The ITU, International Regime?

The end of the eighteenth century saw the emergence of a new technology that would change life throughout the world. In 1793, the first optical telegraph was installed in France changing the way life was conducted instantly as the speed of information took a giant leap forward. After 1793, telegraphs continued to develop with the invention of the electric telegraph, radiotelegraph, and telephone. All of the advancements since the telegraph make up what is known as telecommunications. Telecommunications continue to advance today as new innovations are made. Before the telegraph, messages could take weeks or even months to reach their destination. The telegraph allowed messages to be received on the same day rather than weeks later. The ability of the telegraph to change the rate at which messages were sent and received changed the face of international relations and war forever.[57]

2.1 History of the ITU:

Following the invention of the telegraph, the first telecommunications networks were created. The first networks were sets of telegraphs, owned by the same state or private enterprise, linked together with the ability to communicate within their group. As the networks developed, so did telegraph technology, which allowed for massive networks to reach around the world.[58] As the telegraph spread, there were varied and competing networks that arose within states. A problem between telegraph networks, however, was that they could not communicate between different states or outside of their own proprietary network. Each network had a different method of communication, different equipment, different national language, or different telegraph language. The disjointed nature of the early telegraph networks created a need for leadership and continuity among the different states and proprietors. In order to address the initial problems that arose between networks, states began to make treaties to help coordinate their communication policies but it was not until 1865 that any effort was taken to create large-scale international leadership within the telegraph sector.

In 1865 Napoleon III held a conference in Paris to set international standards for telegraph communication. The conference led to the creation of two documents, the

[57] Armand Mattelart, *Mapping World Communication: War, Progress, Culture.* (Minneapolis: University of Minnesota Press, 1994), 3-6

[58] Armand Mattelart, *Networking the World, 1794-2000.* (Minneapolis: University of Minnesota Press, 2000), 10-12.

International Telegraph Convention and *Telegraph Regulations*. These two documents helped to create an international telegraph network and the world's first modern international organization.[59] The Paris Conference created the first set of international standards that applied to telecommunication. The new standards dealt with issues such as resource allocation, technology, delivery processes, fees and the adoption of Morse code as the international telegraph communications standard.[60] The discussions and decisions of the Paris Conference led to the creation of an international body to administer telegraph communication. The Paris Conference and its documents culminated in 1868 with the creation of the International Telegraph Union, known today as the International Telecommunications Union (ITU).[61]

The changes that took place due to the proliferation of the telegraph affected the world in many ways. With drastic change, there was a need for leadership and management. This chapter examines the managing and coordinating body of the international telegraph and telecommunications system, the ITU. Using the discussion and framework from chapter one, the ITU will be examined through the lens of regime theory. The history of the ITU is important to the discussion since it illustrates the evolution of a communications organization dealing with new technology grounded in standards and norms. This chapter examines how the ITU has grown to meet the needs and demands created by the standards and norms that make international telecommunication possible. The model discussed in chapter one examines norms, transparency, data collection, verification, and assessment processes in a regime. The regime model reinforces the ITU as an international regime and helps to build a basis of comparison for chapter three. In order to apply the regime model to the ITU, it is first necessary to examine the history that created the institution, and then to discuss the organization in the context of regime theory.

The ITU maintained frequent meetings after its creation, with the first held in 1868 in Vienna. ITU meetings allowed the member states, and the organization as a whole, the opportunity to adapt to the newest technology and create new standards. The

[59] George Codding, and Rutkowski, *The International Telecommunications Union in a Changing World.* (Dedham: Artech House, Inc, 1982), 4-8
[60] *Ibid.*, 5
[61] *Ibid.*, 6

decisions made in relation to new technology and standards adhered to ITU norms to maintain communication and development with innovation between member states. Unlike regional agreements of the past involving state-to-state issues, the ITU was open for all states to join.[62] Although the members of the ITU supported the technical advancement of the telegraph, it was not until the 1920s that any action was taken to incorporate the telephone, which had been developing for decades.[63] Throughout the twentieth century, the ITU continued to develop standards as new communication technology developed from telegraph to radio to satellite, and from analog to digital. The ITU has grown in size and scope as its mission has evolved, incorporating new technologies and evolving as an institution with changing political atmospheres.[64]

In spite of its early reluctance to incorporate different technologies, such as the telephone, the ITU has developed beyond its original mission of telegraph communication.[65] In 1932 the International Radiotelegraph Convention (IRC) joined the ITU, which was a natural step since the IRC already used the administrative body of the ITU as its own, and framed many of its policies after ITU work.[66] The incorporation of the IRC into the ITU brought about the name change from the International Telegraph Union to the International Telecommunications Union. The ITU met and addressed policy issues until WWII halted the meetings for its duration. Following WWII, the ITU resumed its meetings and became a specialized agency of the UN as a part of the United Nations Educational, Scientific, and Cultural Organization (UNESCO).[67] As a result, the membership of the ITU grew to include all countries that were UN members producing greater legitimacy for the organization.

The post-war period saw many changes in the international system and the ITU. The first meeting of the ITU following WWII, held in Atlantic City, created many changes in the structure of the organization, especially when concerned with allocation of

---

62 Armand Mattelart, *Networking the World, 1794-2000.* (Minneapolis: University of Minnesota Press, 2000), 7

63 George Codding, and Rutkowski, *The International Telecommunications Union in a Changing World.* (Dedham: Artech House, Inc, 1982), 9-10

64 George Codding, "The International Telecommunications Union: 130 Years of Telecommunications Regulation" *Denver Journal of International Law and Policy*. 23:3 (Summer 1995): 501-11

65 *Ibid.*, 502

66 George Codding, and Rutkowski, *The International Telecommunications Union in a Changing World.* (Dedham: Artech House, Inc, 1982), 13

67 *Ibid*., 22-23

resources such as frequencies. Through the mid-twentieth century the ITU developed and maintained a large membership from politically, economically, and culturally diverse states. The political and economic resources of ITU member states changed from being predominately wealthy western nations to include states of the developing regions and third world that took advantage of universal suffrage in ITU voting to exert power in mass.[68] The 1970s saw significant changes in the ITU that dealt with the increased size and diversity of the organization. Following the ITUs institutional growth and the accompanying growing pains, it also had to adapt to the advancing technology of the times with new standards.

Technologically, the 1960s and 1970s saw changes in the ITU as new policies had to be created to deal with new advances in telecommunication and especially one exceptional new technology, satellites. The changes in telecommunications technology created a need for new norms, standards and policies that dealt with allocation of resources. Resource allocation was an especially important issue with satellites, which is discussed in greater detail later in this chapter. The 1980s brought new threats to the ITU, as the increased size required that the limited telecommunication resources be shared between a greater number of states. Since the mid 1980s, the ITU has faced threats from its larger members. The threats are similar to those the UN had been faced with, namely funding loss and withdrawal by large states. Larger states that contributed more money forced debates about the power each state should garner in both these organizations.[69] Those states that contributed the most to the institution felt that they should be given more voting power and greater access to allocated resources than those that had the least economic power. The debate over funding and resource allocation originated from the United States and the United Kingdom. The debate was very similar to the US and UK criticism of UNESCO which led to their withdrawal from the organization. The issue throughout the contentious debate was centered on greater resource allocation of satellite slots in certain orbits such as Motorola's project Iridium[70]. The ITU also faced threats from the growing support of regional telecommunications

---

[68] George Codding, "The International Telecommunications Union: 130 Years of Telecommunications Regulation" *Denver Journal of International Law and Policy*. 23:3 (Summer 1995): 511

[69] Eleanor Mahoney, 1993. "The Utilization of International Communications Organizations, 1978-1992." *Beyond National Sovereity: International Communication in the 1990s.* (Norwood: Ablex, 1993), 317-19

organizations. Regional organizations were more efficient than the large ITU in some ways, which was slower to adopt new standards for technology due to organizational and size limitations. The ITU was very responsive in its infancy with frequent meetings, but as it has grown and telecommunications have advanced, the ITU has become limited in its ability to adopt new standards in a timely manner. Since 1988, the problems of the ITU have prompted self-examination and change in the organization.[71]

2.2 ITU Norms:

Regimes exist in all different areas of state relations. Regimes help to maintain order in specific issue areas by creating norms that articulate the goals of the regime. The norms of a regime offer guidance in times of change. Technology is an area that is continually developing and changing through advances in telecommunications. The continual evolution of telecommunications technology perpetuates the need for new standards to address progress. As discussed in chapter one, international regimes create and maintain norms. The norms of the ITU are based on the principles of accessibility to communications and ability to communicate. These norms can be seen in policies, made since the ITU's founding, with efforts to standardize the telegraph system and today with the process of frequency and orbit allocations. Norms are represented in the telecommunications industry through different standards that exist to facilitate open international communication.

The ITU works to create the standards that are necessary to address the global coordination of communications. The scope of the ITU standards is very broad as they cover international communications from telephones to television to radio and satellites, while adapting to newer public technologies such as the Internet. The ITU is an international institution and was founded as a treaty organization in which member states were bound by international law to abide by the terms of any treaty that they ratified.[72] ITU policy comes in different forms since it must "preserve sovereignty over national networks, while setting rules for international interconnection and the joint,

[70] *Ibid.,* 330.
[71] George Codding, "The International Telecommunications Union: 130 Years of Telecommunications Regulation" *Denver Journal of International Law and Policy*. 23:3 (Summer 1995): 501-11
[72] Thomas Van Dervort, *International Law and Organization: An Introduction.* (Thousand Oaks: Sage, 1998), 71-75

noncompetitive provision of service."[73] The power of the ITU goes beyond the power of the member states. In recent policy changes and development in the ITU the voice of the large telecommunications firms, based in advanced economies, could be heard through state agendas.[74] The policy of the ITU affects more than state actors. The ITU affects many corporations dealing with different types of communications, while also affecting the work of individuals such as radio enthusiasts. The broad scope of the ITU creates standards that affect individual actors, corporate actors, and state actors. An example of the broad scope of policy in the ITU is the process of communications satellite positioning. Different types of satellites require different orbits, but there is only so much room in each orbit. Some telecommunications satellites want the same orbit, but cannot have it because standards set forth by the ITU prevent satellites from interfering with each other, therefore specifying satellite positioning. As a result of norms, the ITU created slots for each satellite in space giving the proper distance and position to prevent transmission or reception interference. A satellite has to be placed in a certain space, but also has to be registered in the country that it is from, a process similar to that of entering cargo in a ship's registry. This set of processes and standards allow for the structured and well-managed application of norms.[75] The satellite orbit registry is just one way that the ITU set standards that affected state action. The satellite orbit policy affects more than just state policy; it also affects telecommunications corporations and the individual taxpayers that have to bear the cost of the state requirements.

The ITU maintains important policies for radio frequencies. The spectrum of available radio frequencies is limited, like the allocation of satellite orbits. The ITU has a frequency allocation table that determines what kinds of broadcasts can be made on which bandwidths. The frequency allocation tables are used to maintain non-interference between signals used for different purposes.[76] The ITU maintains standards to enforce non-interference between different transmissions. The ITU alone cannot monitor the use

---

[73] William Drake, "Territoriality and Intangibility: Transborder Data Flows and National Sovereignty." *Beyond National Sovereity: International Communication in the 1990s.* (Norwood: Ablex, 1993), 268

[74] Eleanor Mahoney, 1993. "The Utilization of International Communications Organizations, 1978-1992." *Beyond National Sovereity: International Communication in the 1990s.* (Norwood: Ablex, 1993), 330

[75] Abram Chayes, and Antonia Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements.* (Cambridge: Harvard University Press, 1995), 138

[76] George Codding, *The International Telecommunications Union: An experiment in International Cooperation.* (New York: Arno Press, 172), 150

of frequencies so states must participate in the management of frequency use within their borders, which is in accordance with ITU norms in relation to national sovereignty. The existence of the Federal Communications Commission (FCC) is an example of an organization that not only works to maintain national communications standards, but also those standards that are created by the ITU. Telecommunications equipment in the US has to be certified for compliance with FCC standards that reflect ITU standards of non-harmful frequency or interference emissions. The FCC monitors transmissions and allocates frequencies to users in order to maintain proper uses of telecommunications resources.[77]

The role of the ITU in international relations is essential to understanding the ITU in the context of regime theory. As a regime, the ITU has a complicated system of standards production and political threats to its existence, which affect its function. The ITU has seen the development of many different standards as communication technology has advanced since the invention of the telegraph. The standards process has developed into a very complicated set of rules and procedures since it must take into account its members and their technological advancement. As a result of its complex standards system, the ITU has faced criticism that it is unable to develop standards rapidly enough as new technology develops. In addition to attempting to rapidly address standards, the ITU must also deal with corporations that develop new technologies and standards to accommodate that technology. With the development of corporate standards, there is competition for the dominant ones. The creation of competitive corporate standards and standards created by regional organizations have created a greater need for ITU responsiveness to the development of new technologies in spite of the divergent opinions of the ITU membership.[78]

The creation of standards is an essential part of the ITU dating back to its formation with the universal adoption of Morse code.[79] The creation of standards that uphold the norms and principles of an institution is key to the existence of any regime. The ITU was formed to create standards that upheld the norms of open communication

---

[77] George Codding, *The Future of Satellite Communications.* (Boulder: Westview Press, 1990), 125
[78] Eleanor Mahoney, 1993. "The Utilization of International Communications Organizations, 1978-1992." *Beyond National Sovereity: International Communication in the 1990s.* (Norwood: Ablex, 1993), 331-333.
[79] *Ibid*.

throughout the world. An example of the power of the norms and standards that the ITU holds is the maintained openness of communications between countries during their most tense political periods. The openness of communication could be seen during two dramatic international political situations in the 20th century. During the Cold War the international phone lines between the U.S. and Cuba remained open for direct dialing, as did the direct lines between the U.S. and China following the defeat of the Chiang Kai-shek and the Nationalists.[80] The ability of the ITU to maintain its norms is illustrated through the open communications that existed during these politically sensitive times and further strengthens the ITU as a regime. Another case that arose regarding radio standards, before the radio was under the full administration of the ITU, was the monopoly of the Marconi radio system. In the early days of radio, the radio systems of the world were not standardized. Different types of radios could not communicate with each other and some networks were proprietary, similar to the pre-ITU telegraph systems. The Marconi Company created a monopoly with their radio system that would not accept communication from other radio brands or systems.[81] The lack of a standardized system of communication in the development of radio meant that important messages would often be refused because their transmission would not be from the right network or even the right brand of radio even though they were technically compatible. This continued until the IRC, later fully integrated into the ITU, was empowered to create and maintain norms for communication.[82] The history of cases such as Marconi and the new technologies that arose show the importance of maintaining and refining norm based standards in the ITU in order to maintain its legitimacy.

2.3 Threats to the ITU:

Due to the importance of timely standards in a regime, the ITU has recently faced a new threat as regionalization has arisen in international relations. As regional organizations have arisen in areas such as trade and security, they have also begun to grow in other sectors. The European Union has developed and as a result there has been a growth in the role of regional organizations to deal with different issues that affect just

---

[80] Abram Chayes, and Antonia Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements.* (Cambridge: Harvard University Press, 1995), 137.
[81] George Codding, and Rutkowski, *The International Telecommunications Union in a Changing World.* (Dedham: Artech House, Inc, 1982), 12-15.

those in that region. It is not surprising then that the ITU is threatened by the growth of regional organizations created to address telecommunications issues. Regional telecommunications organizations are not only more responsive to the needs and concerns of those within that region, but are also more responsive to create new standards and accept new technologies. The efficiency of regional organizations is a threat to the ITU because the ITU is slow to change with its long investigative methods for adopting new standards and its concern for the effects on all of its members. As a result of the ITU's sluggishness with technical advancement, states have a greater incentive to support regional organizations when it best serves their interests. The ITU faces the threat of abandonment as its critics seek to write their own terms on which telecommunications will be conducted.[83]

As discussed above, the ITU currently exists under similar pressures as those that threaten the UN. The current voting structure of the ITU allows for each state to have one vote thereby making each state equal in the international organization no matter their size or contribution to the ITU. Universal suffrage in ITU voting has allowed for a coalition to form between the developing nation members. While there is a draw back for the large industrialized states in the block voting of the developing nations, the ITU has been the model for international organizations by allowing each state to have an equal voice. The coalition that has formed votes in the interest of developing nations has done so since they out number the large industrial states that make greater use of telecommunications resources and donate more to the ITU. The United States and other more industrial nations feel that voting should be weighted to reflect their greater role and interest in the ITU. This debate over control relates to the discussion of the control of satellite orbits for the Iridium phone system by Motorola. This case is exemplary of how the ITU has become a battleground for resource control through state power. In the late 1980s and early 1990s Motorola was working on the failed Iridium project. Iridium was designed to be a satellite phone system that would work at any point on the globe. In order to make this project work Motorola required the use of a lower level orbit. This was a very controversial issue as it would require that Motorola, a US corporation, use

---

[82] *Ibid*.

more than the allotted US orbit slots in the lower level orbits. Motorola was able to obtain the orbits it required because as much as equality among the states is idealized, it is not always a reality in relation to ITU policies.[84]

With the limited resources and the diverse power of states in the ITU, there is a greater need than ever for international regulation of telecommunications. The creation of telecommunications standards at the international level allows for states to communicate with each other. Without the coordination of telecommunications standards, it would be difficult to make international phone calls, as the phone systems of each country, while still different with current regulations, might be extremely expensive or completely incompatible without any form of regulation. Without the norms created by the ITU, technological advancement could be hindered producing an inability to communicate internationally or facilitating the rise of a monopoly. The ITU not only produces a system that allows for easy communication between states but also allows for reduced cost in that communication since service charges are regulated. If the ITU had not created international communications standards, the Internet as we know it would not exist because it would be restricted to the borders of the states that developed their own networks. The coordination of standards by the ITU creates the ability to communicate between different communications networks. The reason that all types of telecommunications networks are able to communicate can be traced back to the formation of the ITU, and at the same time the adoption of Morse code and a standard international telegraph system. The ITU and its original standards were created out of necessity. When the ITU was founded, the scope of technology to administer was limited to connecting a few telegraph networks with one technology. In its early years, the ITU was able to cope more rapidly with changes in technology than it can now given the broad scope of telecommunications. In recent years, the ITU has had to adjust to the rapid rate of change in technology to help create standards. The development of standards can happen in different types of organizations, which is especially true of the Internet, which has multiple organizations that govern different aspects of policy and standards. One example of Internet administration on a large scale is the Internet

[83] Eleanor Mahoney, 1993. “The Utilization of International Communications Organizations, 1978-1992.” *Beyond National Sovereity: International Communication in the 1990s.* (Norwood: Ablex, 1993), 331-333.

Society, which has become a member of the ITU to help make international policy.[85] ISOC has developed as the maintainer of Internet standards and will be discussed in detail in chapter three. It has been accepted into the ITU to help create a more efficient response to the continued innovation and growth of the Internet.

2.4 Standards:

The states of the world use many different networks consisting of both public and private. The number of networks that exist creates variety in type. As was discussed earlier, different networks require some degree of standardization in order to connect to each other in accordance with the norms of the ITU. The ITU is the oldest international organization in the world. Since its inception, the ITU has been more than a standards organization. The primary goal of the ITU is to create and maintain communication standards globally, but has found during politically tense situations such as the Cold War, that the arguments go beyond standards and address autonomy and sovereignty. The ITU respects and supports the sovereignty of each member state, but plays its role as creator and administrator of international standards as do other international organizations.[86] The ITU respects the right of each state to have a domestic communications system, but they have regulations that might affect some state policies. ITU standards can affect state policy depending on the frequencies used or the method of communication being used and the externalities that arise from it.

Communications technology is always advancing, therefore it is always important that the ITU advance with it. The method by which the ITU creates standards is through the use of working parties. The working parties meet to examine changes in communications technology and help create means by which to maintain communications stability between states. The creation of standards is the reason that the ITU exists since it was created as a means to connect telegraph networks of different European countries that used different standards.[87] According to Codding and Rutkowski, standards have advantages and disadvantages. Standards allow for better cooperation between the public

---

[84] *Ibid.*, 330
[85] Study Group 13, Temporary Document 22 (PLEN) "New Version of the IP Project Description." (Kyoto: International Telecommunications Union, 2000), 4
[86] George Codding, and Rutkowski, *The International Telecommunications Union in a Changing World.* (Dedham: Artech House, Inc, 1982), 204-205
[87] *Ibid.*, 225

and private sector to introduce new technology for better communication between states. Standards also allow for new competition to arise as different companies specialize in the newest technology. A disadvantage of competition and specialization with standards is that a new technology may be ignored because it does not comply with existing standards, which might otherwise have been advantageous for society. Another disadvantage of the standards process is that it requires a greater amount of capital to implement new systems for both the telecommunications industry and the states.[88]

It has been shown that the ITU's primary goal is to create standards relative to its norms in order to facilitate international communication and fair distribution of resources. The norms and standards of the ITU form the basis necessary for a regime. The examination thus far of the commitment of the ITU to its norms and standards allows for the continued examination of the ITU as a regime using the remaining regime framework from chapter one. This chapter has looked at the type of norms created and the general methods by which norms and standards are developed. It is also important to understand the process by which norms are administered following their creation and implementation as a regime.

2.5 ITU Transparency:

All institutions must maintain accountability in order to be viewed as legitimate; as a result it is important that an institution such as the ITU must maintain standards that are transparent. Transparency, as discussed in Chapter One, is an openness of the institutions process for norm creation and administration. Transparency makes an institution open to scrutiny in order to ensure that its processes are objective and meet with the principles on which the institution is founded. The ITU was founded to create standards for all states that wished to join and is accountable to all of its members. The creation of standards in the ITU is done through working parties as discussed above. The working party is a transparent method to create standards. Working parties are comprised of many different individuals representing states, telecommunications companies and others that have vested interests in the standardization process. The ITU's openness in the membership of the working parties helps to contribute to its transparency, as there is greater exposure of the discussions and decisions made in the working parties. The notes

[88] *Ibid*., 226-227

and results of the working parties are becoming more transparent as they are beginning to be publicly posted more often on the Internet as soon as they are approved.[89] The ITU is made up of many different countries with many interests and affects private interests too. The varied of interests that rest with the policies of the ITU make its transparency important. The transparency and openness of the working groups not only allows for scrutiny of the processes of standards creation, it also allows for greater input of opinions on possible standards as others criticize the decisions of the working groups. The ITU has created a system that tries to seek the best solutions and recommendations, taking into account diverse opinions without discrimination, while placing checks on the standards process through the ingrained transparency. The ITU must maintain its legitimacy through non-biased policy creation, which is done through the transparency of the working parties and administration of the institution.

2.6 Reporting and Data Collection in the ITU:

An international regime must maintain its legitimacy through enforcement of the norms and standards that it creates. An important aspect of maintaining norms is reporting and data collection. Reporting and data collection allow the institution to understand how members are acting in relation to the norms of the institution. As discussed in Chapter One, most institutions require self-reporting and the ITU uses this policy. The ITU has policies in place that require the recording and reporting of information from the member states. While the ITU is limited in its ability to enforce the standards that are created, it is generally known when they are not followed. Reporting policies are important in a many areas of the ITU, two of them are satellite registries and frequency allocation tables, and assignments in member states. The satellite registry system requires a method of self-reporting. To use a previous analogy, the satellite registry is the equivalent of a ship's registry. The Motorola Iridium system dealt with issues of satellite registration and the allotment of resources with in the ITU. The resources of space are limited in certain orbits to protect against harmful interference; therefore, the satellites must be registered with the ITU and another organization known

[89] "Review of the ITU-T." (Geneva: International Telecommunications Union, 2000), 2-6.

as the International Telecommunications Satellite Consortium (INTELSAT).[90] Without a system of registration of satellite positioning there would be an abuse of the resources and it would severely affect the maintenance of ITU norms. Similar to satellite registration is the reporting of frequency allocation and use through the frequency allocation tables produced by the ITU to fairly divide the limited number of frequencies and to parcel them in a method to prevent harmful interference. Frequency allocation is important since it helps to define who has the right to use a certain frequency. When there is a violation of the arrangement there is sometimes interference in the transmission or reception of signals. If there is interference, it is then reported to the ITU so that the legitimate user of that frequency can be determined. It is also important that there be communication between states and the ITU as to the assignment of frequencies within the borders of a state so that they do not interfere with those outside of the borders.[91] Through the policies of the ITU it is necessary that there be self-reporting by its members to ensure that telecommunications function properly. As a regime, the ITU functions well in reporting because its policies are not legally binding. They give the incentive of proper communication to maintain reporting. It is important, though, that all self-reported data be verified.

Although the standards produced by the ITU are voluntary, telecommunications are still monitored, especially with regard to harmful interference and frequency usage. The nature of the global division of telecommunications makes it obvious when there is a violation by a state or a private organization. The field of radio communication has strict rules about non-harmful interference on the international level. If the frequency allocations are violated, then it is possible that the frequency will interfere with someone else transmission or reception. The interference and strict parceling of the frequencies helps to identify those that violate the standards set by the ITU. At the same time, states still have control over the methods and standards of telecommunication within their own borders as long as they do not affect those outside of them. Although the norms of the ITU are not legally binding, both states and international organizations can be sanctioned

[90] Eleanor Mahoney, 1993. "The Utilization of International Communications Organizations, 1978-1992." *Beyond National Sovereity: International Communication in the 1990s.* (Norwood: Ablex, 1993), 330
[91] George Codding, and Rutkowski, *The International Telecommunications Union in a Changing World.* (Dedham: Artech House, Inc, 1982), 245-253

by the creation of a monitoring station. A monitoring station allows for an independent analysis of frequency usage in a certain region. In the case of states that wish to create monitoring stations, it is required that two states run the station together. This is a method of creating transparency and verification. Requiring that two states run each monitoring station helps to legitimate the information provided from that station. The two states act as verifiers of the reported information so that one state does not use the monitoring station to manipulate the information that is submitted to the ITU about the uses and abuses of frequencies. The ITU also allows for the implementation of other monitoring stations by other international organizations, and public and private enterprises that are approved by the ITU administration.[92] Given that the resources of the monitoring stations are both public and private, the ITU seeks to gain unbiased data in order to make the most informed decisions possible and gain information for future developments to better maintain its norms.

2.7 Verification:

The information gathered through all of the data that is received and verified by the ITU must be studied and acted upon. The ITU is limited in the action it can take against violators of its standards since they are voluntary, but some action can be taken to resolve disputes especially related to frequency usage. The assessment strength of the ITU is its ability to adapt and create new policy to better serve and facilitate global communication. The ITU is constantly reviewing its policies and using the information it receives through reporting and monitoring to aid in the decisions it makes concerning norms and standards.

2.8 ITU Assessment:

The final step of the regime framework is the assessment process, which is a strength of the ITU given the system of working groups that are in place to develop better communications standards. The size of the ITU has been a criticism for the slow adoption of new standards, but to help speed the standards process, the ITU has incorporated more opinions by allowing private industrial voices to be heard. This helps to give the best selection of opinions and speed the standards process through the

[92] *Article S16, International Monitoring.* (Geneva: International Telecommunications Union, 1999)

bureaucracy of the institution.[93] The ITU, while limited by size, has worked over the past decade to speed the rate at which it makes recommendations and the availability of information about its work.[94] Throughout the ITU there is an emphasis on maintaining standards to uphold the norms, on which the institution was founded and still hold true today, as technology and telecommunication advance to cellular phones and the Internet requiring new standards from the ITU regime.

The ITU has faced criticism recently for the speed at which it has responded to new technology and demands. The ITU recognizes the criticism and has begun to take steps to improve the speed at which the organization responds to new technology and creates responsible norms for communication. The ITU continues to address issues of communications advancement and is working to more efficiently serve the international community. The ITU feels it is necessary to maintain its role as the pre-imminent telecommunications standards organizations by working with other organizations to speed up the response to new telecommunications issues.[95]

2.10 Conclusion:

The ITU represents a very complex international regime. Norms and standards are of the utmost importance to it. The ITU is a historic institution that is made up of many different states working to universalize global communication so that the peoples and governments of the world may communicate better, as it has since its inception. As the world's oldest international organization, the ITU works as a regime to uphold the norms that it was founded upon in Paris 130 years ago. This chapter has examined the history and complexity of the ITU and its broad scope of responsibility to show how it maintains technology through the norms it was founded upon like all regimes should. As a voluntary regime, the ITU lacks enforcement power, but it is strengthened by the fact that its standards and norms are, for the most part, followed by its members due to their importance in international communication. The compliance with the voluntary

---

[93] George Codding, "The International Telecommunications Union: 130 Years of Telecommunications Regulation" *Denver Journal of International Law and Policy*. 23:3 (Summer 1995): 510-511

[94] Anthony Rutkowski, "Today's Cooperative Competitive Standards Environment for Open Information and Telecommunications Networks and the Internet Standards Making Model." <http://www.isoc.org/papers/standards/amr-on-standards.html>, (Cambridge: Harvard-NIST Workshop, 1994)

[95] "Review of the ITU-T" ITU 2000 and "Draft Amendments to the Constitution of The International Telecommunications Union", ITU-2000 Bureau, (Geneva: International Telecommunications Union, 1998)

standards of the ITU speaks to the legitimacy of the ITU regime as viewed by its members. The growth of new technologies has created the need for new standards and the ITU recognizes this with its alignment with organizations such as ISOC to incorporate its expertise into the continued growth of telecommunications standards of the future.

Chapter 3: Case Two: ISOC, A New Form of Regime?

The past thirty years have seen rapid advancement in telecommunications. Technological developments have brought about the advent of the personal computer, the cellular phone, and the computer network. Until the 1980s, consumers had little access to computer networks, which were limited considering the computing power of the Commodore 64. The 1980s saw the rise of closed commercial networks such as Prodigy and CompuServe. The commercial networks were originally limited to the internal services and content they could offer since they were limited only those services provided through the specific network. During the 1990s, computer networks grew rapidly as they were no longer restricted by the commercialization of the Internet by the US Congress in 1992, followed by massive consumer growth through greater access in 1995.[96] The commercialization of the Internet allowed the limited service providers of the past the ability to link to the rest of the world. As a result, companies such as America Online (AOL) and other service providers popularized the Internet to the consumer. While the Internet was a rather new commercial innovation for the consumer, it had actually been developing since the early 1960s through packet switching and other research.[97]

The previous chapter of this study discussed the ITU, a regime that formed to fill the void of leadership and coordination of international communications originating with the telegraph. The rise of the Internet created a similar void as the it was commercialized. This chapter will examine the organization that came into existence to coordinate the Internet just as the ITU did for the telegraph. The coordinator of the Internet is the Internet Society (ISOC). ISOC formed with Internet commercialization to maintain a set of norms through standards and education. This chapter will examine ISOC through the lens of regime theory using the framework from chapter one. Before ISOC can be examined through regime theory, it is necessary to briefly discuss the history of the Internet and the events that led to the creation of ISOC. The role that standards played before ISOC is crucial to understanding its creation. Following the history of the Internet and ISOC, the regime framework will be examined in relation to the norms, principles and actions of the organization to determine if it is a regime.

3.1 Packet Switching:

---

[96] Robert Zakon, RFC 2235 “Hobbes Internet Timeline v5.0” <http://www.isoc.org/guest/zakon/Internet/History/HIT.html>, (Reston: Internet Society, 2000)

During the 1960s, the Department of Defense (DOD) began to research ways of creating a survivable communications network in the case of nuclear war. DOD research brought about an idea known as packet switching to meet the needs of a survivable network. A survivable network was believed necessary to allow military commanders to stay in contact with troops so that any risk of miscommunication was reduced. The survivable network would be able to maintain real time voice and data transmission between commanders and troops even when normal communications systems had been destroyed.[98]

The general idea behind packet switching was that there were multiple paths that telecommunications messages could travel. Each entry point for a message was a terminal such as a computer. A message was sent from the terminal to a local multiplexing station that had multiple routes to different switching nodes. In addition, the multiple routes also acted as redundant backup routes. The existence of multiple lines and nodes allowed for messages to travel as efficiently as possible. If there was a "clog" or heavy message traffic one way, then the message went through a different route. In case of war, a route or a node in the network might be destroyed, with packet switching, messages went a different route until they reached their destination. When a message arrived at its location, it was then stored until the intended recipient could retrieve it. The creation of multiple switching nodes meant that the destruction of a single node or even multiple nodes would not necessarily stop communications, therefore maintaining the chain of command.[99] Research in packet switching created the technology that would allow for the implementation of a survivable communications network.

The importance of packet switching went beyond the ability to survive an attack, it created a capacity for second-strike retaliation. Packet switching also acted as a safeguard against communication errors that could lead troops to launch an unordered first strike against the Soviet Union. This measure would prevent troops from being misled into launching the US nuclear arsenal in an unprovoked attack due to any type of communications problems that might occur. Packet switching acted as a safeguard

---

[97] *Ibid*.
[98] Janet Abbate, *From ARPANET to Internet: A History of ARPA-Sponsored Computer Networks, 1966-1988*. (Ann Arbor: U. M. I., 1994), 28-33
[99] *Ibid*.

against nuclear war by ensuring that communications were maintained between commanders and troops.

In addition to packet switching's survivability, it also created an alternative, more efficient means to communicate data. Instead of using circuits that had previously been used in telecommunications requiring operators and manual switching, packet switching used computer switches at the nodes that routed the message to the most efficient route. Three different organizations were conducting research on packet switching, Massachusetts Institute of Technology (MIT), RAND Corporation, and National Physical Laboratory (NPL) in the UK. RAND, a DOD research company, was primarily concerned with creating a secure survivable voice network for the DOD. MIT and NPL were researching packet switching for computer network purposes. The appeal that packet switching had for computer networks was its ability to allow computers of different types to communicate and its ability to store messages. Packet switching was still very complicated, but was much more reliable and exhibited greater potential than traditional circuit systems for the purposes of computer networking. Packet switching research of the 1960s was the foundation of the continual growth of computing throughout the world.[100]

In the US, the academic and government researchers that developed packet switching worked together to achieve their goals of connecting computers across distances and creating the technology for a survivable network.[101] Through the combined academic and government research, different models were created for survivable networks. Research on packet switching in the US and the UK had different goals. In researching a survivable network, RAND researcher Paul Baran proposed the creation of interconnected nodes for survivability, then using packets as the method of transmission over the network of nodes. Baran saw packets as a way to make the network more efficient by transmitting messages in small pieces rather than as a whole.[102] At the same time Baran was developing his research on packet switching, Donald Davis

---

[100] Janet Abbate, "Cold war and white heat: the origins and meanings of packet switching" *The Social Shaping of Technology* 2d ed. (Philadelphia: Open University Press, 1999)
Leiner et al. " A Brief History of the Internet" <http://www.isoc.org/internet/history/brief.html>, (Reston: Internet Society, 2000) ISOC published history from the original leaders in computer networking.
[101] Janet Abbate, *From ARPANET to Internet: A History of ARPA-Sponsored Computer Networks, 1966-1988.* (Ann Arbor: U. M. I., 1994), 2

was also developing packet switching without any knowledge of Baran's research. Davis was a researcher at NPL working on a method of connecting research computers in the UK.[103] In the late 1960s and early 1970s the first networks were implemented in both the UK and the US setting the stage for the development of other networks and eventually the Internet.

3.2 Early Networking and Standards Creation:

In the US, ARPANET went online in 1969 with the first four nodes, they were UCLA (9/2/1969), Stanford Research Institute (10/1/1969), UCSB (11/1/1969), and University of Utah (12/1969) creating the foundation of the Internet.[104] The researchers of networking and early users of ARPANET found that it was helpful to share their ideas, learn, and receive feedback from their peers. The need for feedback was met with the creation of the "Request for Comments" (RFC). RFC was a publication for network users and researchers to share ideas and receive advice or help in developing those ideas or testing their viability.[105] The RFC allowed all those using ARPANET to learn from each other since the computer network was a new and experimental technology. The first RFC was sent in April 1969 by Steve Crocker, and started a new means of information sharing and collaboration. The RFC still exists today and represents the published discussions of the process of creating network standards. RFC discussion is available online and publicizes evolving Internet standards as technology improves.[106]

The standards that are published in the RFC come from the Internet Engineering Task Force (IETF). The early network researchers of different government and scientific organizations formed the IETF to collaborate on network building; they were also the primary contributors to the RFC. The IETF "is a large open international community of network designers, operators, vendors, and researchers concerned with the evolution of

---

[102] *Ibid*., 28-30
[103] *Ibid*., 30-31
[104] Robert Zakon, RFC 2235 "Hobbes Internet Timeline v5.0" <http://www.isoc.org/guest/zakon/Internet/History/HIT.html>, (Reston: Internet Society, 2000)
[105] "Request for Comments (RFC) –Overview" <http://www.rfc-editor.org/overview.html>, (Reston: Internet Society, 2000)
[106] *Ibid*., Leiner et al. " A Brief History of the Internet" <http://www.isoc.org/internet/history/brief.html>, (Reston: Internet Society, 2000)

the Internet architecture and the smooth operation of the Internet."[107] IETF members helped to develop the standards and protocols for communication between computers such as NCP, later TCP and TCP/IP. The original users of ARPANET were from many different academic backgrounds that did not all research computer networks. As a result of varying degrees of network knowledge, many times in the development of early computer networks the users found themselves working to improve the network even if they did not have an academic background in computer science. Those ARPANET users of different academic backgrounds often found themselves programming the computers to communicate with other computers in order to conduct their research and share their data. It was necessary that the original members of the IETF help to develop the standards by which computers communicated creating new protocols such as NCP to make networks more universal, efficient, and effective. IETF created the standards by which networks and different types of computers were able to communicate. As networks were created, many problems arose with compatibility. During the 1960s and 1970s, each computer of the era communicated differently creating a need for a standardized method of connection between two different types of computers. As networking grew, the IETF began to create working groups to study different network issues that arose in greater depth. IETF workgroups are democratic bodies and are open to any person in the world that wants to join and contribute to the development of Internet standards. The workgroups are categorized by topic and managed by area directors. The area directors represent a portion of the administrative equation since they are members of the Internet Engineering Steering Group (IESG). "The IESG is responsible for the technical management of IETF activities and the Internet standards process… The IESG is directly responsible for the actions associated with entry into and movement along the Internet standards track," including final approval of specifications as Internet Standards.[108]" The other administrative body of the standards process is the Internet Architecture Board (IAB). "The Internet Architecture Board (IAB) is a technical

[107] "Overview of the IETF" <http://www.ietf.cnri.reston.va.us/overview.html>, (Reston: Internet Society, 2000)
[108] "ISOC Internet Standards and Protocols Program" <http://www.isoc.org/standards.index.shtml>, (Reston: Internet Society, 2000)

advisory group of the Internet Society.”[109] The IAB advises ISOC, provides insight, selects IESG members, and maintains technical relationships with other standards bodies.[110] The organizations discussed above are all interconnected to help bring guidance to the standards process. The different standards bodies of the Internet have been in development since the 1960s and 1970s beginning with the RFC. As the Internet began to grow and become commercialized it was necessary for the standards organizations to change and grow with it.

3.3 Commercialization and the Creation of ISOC:

In 1992, the US Congress commercialized the Internet. With this commercialization, the standards organizations of the Internet, that had been in place since ARPANET, realized that their funding would be insufficient under a commercial network. Up until 1992 the Internet had been growing under various US government agencies, such as the DOD and National Science Foundation (NSF), therefore the standards bodies were fully funded by the government. Commercialization made it necessary for the IETF, IAB and other standards organizations to find new sources of funding. In response to commercialization, the standards bodies created ISOC in 1992. ISOC became the capstone organization for Internet standards research and the financial face to the standards process. ISOC represents, and is advised by, all of the Internet standards organizations that have developed with the Internet.[111]

ISOC is a body of many different actors and stakeholders in Internet development. It exists with the goal of making the Internet a better environment for all who use it.[112] The mission statement of ISOC is “to assure the open development, evolution and use of the Internet for the benefit of all people throughout the world.[113]” ISOC seeks to promote “an Internet culture” that fosters effective self-governance.[114]” The mission statement of ISOC is a declaration of the organizations norms. As a result of ISOC’s norms and its standards bodies, ISOC supports many different initiatives related

[109] “IAB Overview” <http://www.iab.org/iab/overview.html>, (Reston: Internet Society, 2000)
[110] *Ibid*.
[111] “ISOC Internet Standards and Protocols Program” <http://www.isoc.org/standards/index.shtml>, (Reston: Internet Society, 2000)
[112] “The Internet is for Everyone.” <http://www.isoc.org/isoc/media/speeches/foreveryone.shtml>, (Reston: Internet Society, 2000)
[113] “ISOC Mission Statement.” <http://www.isoc.org/isoc/mission>, (Reston: Internet Society, 2000)
[114] *Ibid*.

to Internet policy development. As was discussed above, ISOC was originally created to maintain funding for the creation and maintenance of standards that were previously supported by research agencies of the US government. The initial bodies that created the Internet Society realized that the funding that existed would not be sufficient to continue to maintain and create Internet standards as networks grew and the Internet began to develop commercially. The creation of ISOC was a necessity to maintain the Internet standards process since Internet growth has doubled every year since 1988.[115] The history of the Internet and ISOC's development above will confirm the analysis of ISOC as an institution and aid in understanding what it has done since it was created in 1992.

3.4 ISOC as a Regime?:

Thus far this chapter has discussed the bodies concerned with the creation of Internet standards. The question must now be asked, is ISOC a regime? This question is answered using the discussion of regime theory from chapter one of this study. In studying ISOC through the lens of regime theory, an examination is made of what ISOC and the standards bodies have accomplished. It is necessary to discover ISOC's realm of power to understand its ability to effect change and establish norms and standards in the multifaceted Internet environment. ISOC is an organization that has many different standards bodies all working together to make the Internet better. The standards bodies have existed much longer than the ISOC itself, but has ISOC helped to give them legitimacy outside of the government circle in which they arose and in the current commercialized global Internet? Answering these questions helps to give an understanding of the role that ISOC and the standards bodies play in the international realm of the Internet.

ISOC acts as a coordinator of many different organizations that maintain common norms and goals. The organizations that make up ISOC are the IETF, IAB, IESG and Internet Assigned Numbers Authority (IANA). IANA acted as a global coordinator of the Internet and was responsible for managing the IP address system, now under the jurisdiction of the Internet Corporation for Assigned Numbers and Names (ICANN). In

[115] "The Internet is for Everyone." <http://www.isoc.org/isoc/media/speeches/foreveryone.shtml>, (Reston: Internet Society, 2000)

order to fully understand the role of ISOC as an international organization, it is necessary to examine the standards bodies that make up ISOC. Each of the ISOC standards bodies helps to create standards based on a common set of norms for Internet communication and development. Even though ISOC upholds a set of norms, it does not fit the profile of a typical international regime. ISOC is made up of individual citizens from around the world as well as organizations such as corporations and non-profits. While the diverse makeup of ISOC might seem to lessen its ability to create and implement norms, ISOC and the IETF have been very successful to date, thereby increasing the legitimacy of the standards produced due to the large number of opinions put into the process.

3.5 ISOC Norms:

Using the framework from chapter one, the norms of ISOC are interpreted through its mission and goals. Examining the goals and mission of ISOC allows for the creation of a context to study its actions. ISOC has varied interests and projects related to issues from "technological, educational, social, economic, standards, political, ethical and legal[116]" Internet related perspectives. The different interests of the ISOC reflect the multitude of issues that have arisen in the administration of the Internet beyond its technical development. The generalized goals and purpose of ISOC also show the depth of interest that exists in the Internet. The goals of ISOC are:

"**a.** development, maintenance, evolution, and dissemination of standards for the Internet and its internetworking technologies and applications;

b. growth and evolution of the Internet architecture;

c. maintenance and evolution of effective administrative process necessary for operation of the global Internet and internets;

d. education and research related to the Internet and internetworking;

e. harmonization of actions and activities at international levels to facilitate the development and availability of the Internet;

f. collection and dissemination of information related to the Internet and internetworking including histories and archives;

g. assist technologically developing countries, areas, and peoples in implementing and evolving their Internet infrastructures and use;

h. liaison with other organizations, governments and the general public for coordination, collaboration, and education in effecting the above purposes.[117]"

The goals listed above imply that ISOC is more than just a group of people interested in computers and network standards. The goals imply that ISOC is an effective organization that seeks to aid society through the creation of standards and cooperation beyond the technical. ISOC goals reflect an interesting institutional attitude and environment. ISOC goals exist to give the institution direction towards positive development of the Internet globally. An examination of the work of ISOC shows that its goals are being pursued. Although ISOC is based in the US, its goals are to aid all Internet users around the world. ISOC works with other international standards bodies to accomplish goals in developing the Global Information Infrastructure (GII), a seamless interconnection of the world, which is in accordance with goal criteria "**h**" listed above.[118]

3.6 Standards Bodies:

The standards bodies of ISOC, historically, have created many of the technologies and standards responsible for the Internet as it exist today. As discussed above, the IETF, IAB, IESG, and RFC all contribute to the development of Internet standards. Many different sets of standards have been created through the ISOC standards bodies and not all of the standards produced are technical standards. ISOC envisions its mission going beyond the technical standards to issues of social relevance. The role that many

[116] "ISOC Programs" <http://www.isoc.org/isoc/programs/>, (Reston: Internet Society,2000)
[117] "Purposes and Goals of the Organization" <http://www.isoc.org/isoc/mission/goals/>, (Reston: Internet Society, 2000)

members and leaders of ISOC see the institution having is to help "the Internet reach its full potential as a positive tool for improving people's lives.[119]" Socially, ISOC is committed to promoting education and child safety online, as well as legally protecting the Internet from excessive regulation and control and helping connect the world.[120]

The development of technical standards is key to ISOC. The IETF has developed with the Internet since the early networks. Under ISOC, the IETF has maintained itself as the developer of standards while being more efficiently managed under the administrative restructuring of the standards process with the IESG and IAB. The restructuring of the standards process has strengthened the ability of IETF to create new standards and better study the effects of new standards while providing a stronger since of legitimacy to the standards produced. The goals of the ISOC standards bodies are to set standards for the Internet and make it better for those who use it. The goals of ISOC and its subsidiary bodies create an institution that works to impose order on the Internet while protecting the freedom that it brings.[121] The activities related to achieving institutional goals help to create standards for Internet usage. Internet standards uphold ISOC norms for users of the Internet. The norms of the Internet usually have to be abided by to maintain access to the Internet, at least at a technical level. An example of technical standards and their role in allowing connectivity is IP addresses. IP addresses have become the dominant method of computer identification in networks. Underneath each URL is an IP address, a string of numbers that identifies the computer that the website is located on. IP addresses were developed through the advancement of network protocols through the IETF in the 1970s and 1980s. Although there were competing connectivity standards set by other groups especially in Europe, the Internet standards bodies and ARPANET worked through international standard so that IP address became the accepted standard.[122] The work of the IETF has had a global impact, even though it

---

[118] William Drake, and Frieden, R. M., " The Global Information Infrastructure" *Telecommunications in the Information Age.* (Washington: United State Information Agency, 1998), 74-77

[119]"ISOC Mission Statement." <http://www.isoc.org/isoc/mission>, (Reston: Internet Society, 2000) Society

[120] Summary of the points listed on "ISOC Programs" <http://www.isoc.org/isoc/programs/>, (Reston: Internet Society,2000)

[121] *Ibid*.

[122] Janet Abbate, *From ARPANET to Internet: A History of ARPA-Sponsored Computer Networks, 1966-1988.* (Ann Arbor: U. M. I., 1994), 105-141

was originally limited to network engineers of the US while under government funding. The IETF has worked to move into a position of greater importance internationally by working with the ITU-T to create Internet standards.[123]

3.7 Transparency:

In addition to norm based standards production, the standards bodies of ISOC have a very strong tradition of transparency in all aspects of the organization. Transparency in Internet standards began with the first RFC published in 1969. The RFC publicly display new ideas and work completed by the different working groups of the IETF as well as the work of other individuals interested in the development of computer networks. The RFC and its editor fall under the management of the IAB. The IAB acts as the management of the standards process setting guidelines and reviewing development, as discussed above. The publication of the new standards through the RFC allows for feedback and modification if they are unsatisfactory and allows for alternative ideas and better solutions. The RFC process produces great flexibility through public examination of the standards process. The standards process is also open to all people. The only requirement to join an IETF working group is to participate via email. Once someone has joined a workgroup, they then receive the electronic discussions that are taking place and can contribute to those discussions. As a result of the openness of the workgroups, transparency has no limits in examining the processes of standards creation for the Internet. The RFC helps to create feedback in order to better achieve the goals of ISOC. The entire process of norm based standard creation is available for all to see, giving ISOC a great resource for a legitimated standards process.[124]

The application of many of the standards produced by ISOC and its components is limited to both public and private service providers. The standards that are limited to service providers are usually technical standards related to linking their network to the Internet. It is necessary to use the standards such as IP and tools such as the Domain Name System (DNS) in order to connect the network and subscribers to the Internet, but closed networks do not have to use the same standards as those that are connected to each

---

[123] Scott Brander, RFC 2026 , <http://www.rfc-editor.org>, (Reston: Internet Society, October 1996)
[124] "Request for Comments (RFC) –Overview" <http://www.rfc-editor.org/overview.html>, (Reston: Internet Society, 2000)

other via the Internet.[125] The end user or subscriber exposure to technical standards may only be installation of network software or network connections and DNS numbers, but those standards go beyond the computer to the Internet allowing the user to find websites and send and receive email.

3.8 ISOC Data Collection:

As a standards institution, it is necessary that the components of the institution are informed of developments and usage of the standards. The process of data collection and reporting for the Internet is involved with the development of each standard. ISOC works to research all aspects of the standards that are being created in the IETF. While a standard is being developed, the workgroups seek to examine the effects of the standard on all parties involved, how the community receives the standard, and the utility of the standard.[126] Research on the effects of each standard helps to create greater quality standards for the Internet. The research conducted on each standard exhibits responsibility in data collection and reporting to minimize the negative effects of any work that is produced through the workgroups. The great diversity of the workgroups helps to strengthen the reporting and data collection through the strength of transparency and the RFC. The commitment to responsible standards from the working groups is reflective of the mission of ISOC to create a positive environment on the Internet for all that use it.

Service providers that connect to other networks through the Internet have to use the standards created by ISOC, therefore they are required to self-administer the standards. The self-administration of the standards is designed in a way that makes using the standards a requirement for all of those that wish to connect their network to the Internet. The reporting and data collection process is left to the service providers in relation to subscriber use and restrictions. Service providers enforce their norms and standards among the subscribers through policies such as “netiquette” and acceptable uses and connectivity protocols. The standards left to the service providers are usually

[125] Scott Brander, RFC 2026 , <http://www.rfc-editor.org>, (Reston: Internet Society, October 1996), 1.1 Internet Standards
[126] *Ibid* “1.2 The Internet Standards Process”

the non-technical standards when dealing with subscribers, but technical when examining the overall connectivity of the service provider to the rest of the Internet.

3.9 ISOC Verification:

The technical standards that are developed by ISOC are not limited to the organization. ISOC has worked to achieve support through other standards organizations. ISOC has worked to attain greater international legitimacy by working with the ITU to adopt ISOC standards for the global growth of the Internet. The openness of ISOC limits its ability to monitor enforcement of the norm based standards. As a result of the ISOC openness norms, the monitoring and verification process is left to those who use the Internet and the service providers for the non-technical standards. In contrast to non-technical norms, technical standards are, in a way, self-monitoring as they control the ability for networks to communicate. Violation of the technical standards of ISOC could limit a network's access to the Internet, but could also help to develop new methods and standards for consideration in network access. The freedom to experiment with the standards and communication through the Internet is important as it embraces the spirit of the IETF, which is an innovative body open to all for the value of their opinions.

3.10 Assessment:

The assessment process for Internet standards that are produced through the working groups comes under the review and approval process of the IESG. IESG examines new standards that are created and determines their necessity and utility. The review and approval process for important technical standards may require greater research. IESG has the power to commission independent reviews of a new standard to insure that the standard will not have negative impact and is the best option to accomplish the goal of the standard before it is approved.[127] The assessment process in ISOC is a continuous process. ISOC is always working to create new standards and improve the Internet. The original bodies that make up ISOC have been contributing to the development of the Internet since it began in the 1960s and will continue to do so as long as the necessity for administration of the Internet exists.

---

[127] *Ibid* "6.1.2 IESG Review and Approval"

3.11 ISOC Leadership in DNS Standards:

The standards process for ISOC very complex. In the context of regimes, ISOC does not fit the typical model. ISOC is a regime created out of necessity for the development and administration of the Internet just as the ITU was for the telegraph 130 years ago. The openness of ISOC, as a regime, reflects the openness of the Internet, as it allows people from all parts of the world to communicate with each other. ISOC's openness adds strength to the institution and its transparency. ISOC is not limited to the voices of state actors, as it is in many regimes, but has the voices of Internet users.

DNS administration in the 1990s became an important issue for ISOC. It is an example of ISOC acting as a regime to uphold standards. The development of DNS brought about a shift in network communication that made the World Wide Web possible. DNS, as mentioned above, stands for Domain Name System, and it allows much easier communication on the World Wide Web. DNS works through a registration system. When a network user types in a web address, such as http://www.tech.psci.vt.edu, a message is sent to DNS servers, which sends the user to the right web page. The DNS servers maintain databases of registered addresses that correlate to IP addresses for a specific computer. DNS works through the assignment of a name to an IP address. Therefore, when a web address is entered into Netscape or Internet Explorer it is sent to the DNS server to find the right computer. DNS makes it easier to remember an Internet address for a web page, so a network user can type http://www.tech.psci.vt.edu rather than 128.173.112.246.

The process of registering domain names began in 1985. Initially, Dr. Jon Postel, editor in chief of the RFCs, from the University of Southern California, was responsible for the registration of domain names. In 1993, the overwhelming growth of the Internet made it impossible for the Postel to register the request for domain names. The NSF decided that the best option for the registration of domain names was to contract it out. In 1995, NSI received a five-year contract to register top-level domain names and maintain the DNS servers. Top-level domain names consist of Internet addresses that use .com, .net, .org, .gov, .edu, .mil, and .int.[128] The NSF contract gave NSI exclusive rights

[128] "Generic Top-Level Domains" <http://www.iana.org/gtld/gtld.htm>, 16 April 2000.

to control the top-level domain names, creating a government-sanctioned monopoly. [129] As a result of this monopoly, ISOC, IANA, and the U.S. Department of Commerce took steps to create competition in the domain name field. Those steps resulted in the creation of ICANN, a non-profit corporation with an open membership, similar to ISOC.

ICANN was created in October 1998, and gradually took control of the administrative duties and standards for DNS and IP addressing. ICANN represents a shift away from U.S. government funding to privatization and internationalization of Internet standards related to DNS.[130] Privatization of DNS created a greater degree of international legitimacy for the maintenance of DNS standards and operations. Working with the Department of Commerce, ICANN has begun to create competition in the DNS registry system by accrediting other companies to register domain names.[131]

The creation of ICANN, by ISOC and others, has facilitated the growth of competition. This illustrates ISOC's ability to maintain the norms on which it is founded. ICANN has been created in a similar style as ISOC. It is an organization that is open to all, and it encourages international input. ICANN has many sources of opinions and strives to listen to them. Countries, IGOs, corporations and individuals all have a voice in ICANN. ICANN strives for transparency, making its actions and meetings public as prescribed by its bylaws.[132] ICANN upholds the norms of ISOC, working to make changes that better the Internet and uphold its norms and standards.

3.12 ISOC Regime:

The ISOC regime reflects the global community of the Internet with a regime of the people not the governments. The regime produced by ISOC is much more horizontally integrated as it does not maintain any legally binding standards over users and service providers, but continues to seek its simple goal of making the Internet environment better. The goals of ISOC listed in this chapter reinforce ISOC as a regime, especially goal criteria "**a", "c", "f",** and "**h".** The goals express a desire to develop standards, for the appropriate management of the Internet, sharing of information, and

[129] Network Solutions, Inc. application for initial public offering, <http://www.sec.gov/Archives/edgar/data/1030341/0000950133-97-002418.txt>, The 1992 NSF grant issuing control of the domain name system to NSI.
[130] "ICANN Fact Sheet" <http://www.icann.org/general/fact-sheet.htm>, 17 February 2001.
[131] "ICANN Background" <http://www.icann.org/general/background.htm>, 16 July 1999.
[132132] "Bylaws" <http://www.icann.org/general/bylaws.htm>, 16 July 2000.

working with others to achieve other goals. These goals show an organization that has strong vested interest in producing a global Internet that is of the highest caliber. The commitment of this organization is great, as it has supported the standards process through member dues and donations, to maintain a system no longer funded by the government. The members of the organization and its components have great commitment as they have continued to voluntarily work with ISOC to develop standards in the growth of the Internet. The membership of ISOC is not limited to those individuals who are technically knowledgeable about networking or the Internet; it is for anyone who supports the goals and ideas of ISOC. The open membership of ISOC helps to bring different ideas and perspective on issues and standards, which is very important to the standards process. ISOC's openness is unique in an organization that creates many internationally accepted standards even though ISOC does not directly enforce standards.

The standards process may be limited in some ways to technical knowledge, but it still exists as a democratic process for all those interested in the fate of networks through a regime of individuals not governments. The Internet will continue to develop under ISOC as new standards are created to meet the advancing needs of new technologies and demands for faster methods of communication between computers. ISOC was developed to meet the needs of the Internet as it was rapidly growing and thus far it has accomplished much in order to make the Internet better for all. In time, perhaps ISOC's position in the international realm will grow as the world continues to integrate through advanced communications, but it has already proven itself to be a regime.

Chapter 4: Comparative Analysis of The ITU and ISOC, and Their Future Together

This chapter is the culmination of my study of telecommunications regimes. Chapter one discussed regime theory and created a framework by which to view regimes. Chapters two and three were examinations of two organizations that have played a tremendous role in developing standards with new technology. The ITU and ISOC are regimes, both concerned with telecommunications to a degree. This chapter will examine the two regimes side by side to determine how they are similar and different. The previous two chapters have discussed what makes each institution a regime; this chapter will examine them historically and developmentally.

4.1 Organization Types:

The examination of ISOC to the ITU begins with a discussion of the differences between the two organizations both historically and functionally. Institutionally, the ISOC and the ITU are in different categories. The ITU is an intergovernmental organization (IGO) formed under a treaty and made up of many different states. Those states are working together to create international policy on issues of concern related to the institution. In contrast, ISOC is a non-governmental organization (NGO) made up of non-state actors who can have memberships made of individuals, corporations, citizen groups, or any combination of actors that are not state sponsored. The NGO, like the IGO, works to create or change policy related to a specific issue area that it is concerned about, but without the enforceability of the IGO. As an IGO, the ITU has much greater power than the ISOC. The ITU is an organization that creates policy based on the legitimate governments of states and is a legitimate authority on the issue area. ISOC, as an NGO, must work much harder to gain legitimacy internationally because it lacks the backing of states. In spite of this difference both regimes are effective in creating and maintaining international standards based on similar norms discussed in chapters two and three. An IGO in many cases is drawn together through international law and treaties, like the creation of the ITU through the Paris Conference in 1865. An NGO can be formed through many different channels. Yet, in the case of the ISOC, it was formed through the organization of professionals concerned about the governing of computer networks.

4.2 Commonalities in Foundation:

The founding of the two organizations shares one very important component. Both the ITU and the ISOC were formed to provide leadership in the creation of standards for a new method of communication. The ITU formed to standardize the telegraph while the ISOC arose to lead in standardizing the Internet. ISOC and ITU share very similar norms based on improving communication throughout the world, which is why it is not surprising that the two organizations have begun to work together to maintain the norms they believe in.

While both formed to fill a technology leadership void, ISOC and ITU differ more than just in the type of organization that they are. As mentioned earlier, the ITU was created through an international treaty forming an organization open to all states. The ITU was formed by states as a method of insuring communication and power internationally through the standardization of the telegraph policy. The telegraph was important because it strengthened the administrative and military capabilities for powerful nations; therefore, the ITU was created as a method to make standards to improve communication and strengthening those states even more. In contrast, ISOC and its components were created through a different method. The members of the groups that created ISOC were not the representatives of states, but were the operators of the technology. The members of the early IETF were creating standards to facilitate their own research. ISOC was created in the early 1990s by the operators and users of networks, working to maintain and create the most efficient network they could. The equivalent for the ITU would have been if the telegraph operators rather than the states had created the ITU. While the creation of the ITU was a systematic process through state negotiations, ISOC has the sense of being created through ad hoc discussion to create methods to make computers communicate with each other.

4.3 Institutional Leadership:

All institutions need management and leadership. The ISOC and the ITU differ in their administration. ISOC, while directed by its board, represents a sophisticated network of professionals. ISOC communicates and governs, for the most part, "long distance," as the members of the organization are located all over the world. The ISOC is quite different in its leadership than the ITU, an organization that maintains a permanent secretariat and administration in Geneva. The ITU has a permanent, full-time administration that works to run a fair organization and tries to weigh the needs of all of its members.

Reflected through the members of each type of organization is the typical power of each organization. The power of an IGO is great as its agreements are usually law and considered supranational. IGOs typically have large support organizations and administrations. The size of an IGO demands many resources both in fiscal and administrative terms. While IGOs are typically large, they also have more limited criteria for membership. Being that the members are usually states, in some cases other groups have been made members, but usually not full voting members. As a result of the many different demands and the great size of IGOs, they are empowered with many responsibilities. The NGO is quite different from the IGO. The NGO usually has fewer limiting factors to membership in the organization. Many times membership is open to those groups or individuals who wish to contribute to the organization. ISOC allows anyone to join the organization at a price. NGOs while requiring dues, as do IGOs, usually have much fewer resources and as a result have small administrations.

When specifically looking at the ISOC and the ITU, both seem to deal with similar issues. Both organizations address telecommunications, but each one approaches telecommunications differently. The ITU, as stated before, is a large organization and as a large organization, focuses on many different issues. The ITU began by creating standards for one technology, the telegraph. Today the ITU creates standards for every type of electronic communication that exists. The ISOC is still a young organization and has a small focus just as the ITU did in it inception. ISOC focuses on the one issue of the Internet. For ISOC, it is important that it help to create a better environment and better communication through the Internet. The major difference with its founding is the difference between an IGO and a NGO as one is made of states and the other is made of groups and individuals. The fact that the ISOC and the ITU both began as organizations focused on creating standards and administering networks to allow for greater communication is a great commonality. While different by membership and design, the ITU and ISOC have much in common. ISOC and the ITU are by nature very different types of organization that deal with similar and related issues.

The ITU and ISOC are an IGO and NGO respectively, but both have a great degree of power when it comes to setting standards. An obvious commonality between the two organizations is that they both create and set standards. Not only do both organizations create standards, they also both use a similar standards process. The ITU and the ISOC both create workgroups or parties to study arising issues. A workgroup is a committee that is put together to decide on new and changing policies. The working parties of the ITU research and listen to groups such as the ISOC and others to help inform them of the different aspects of new technology and figure out the best course to take. The ITU workgroups contain different members of committees from a variety of states, while the ISOC workgroups follow in the tradition of Internet development with open membership in standards creation. Both organizations find strength in their standards process by promoting multiple points of view, but the IETF encourages this to a greater degree.

Following the creation of standards, both organizations are very liberal in their policies. The ITU, an international treaty organization, creates all of its policy as suggestions and recommendations, but does not make it legally binding as discussed in Chapter 2. The ISOC does not enforce its policy either as it has no grounds to, but its policy like the ITU's is often followed because it is the best option to allow for standardized communication.

4.4 Regimes:

As is true with the creation and implementation of standards, the ITU and ISOC have similarity their assessment procedures. The ITU has a much more democratic assessment process as each state has the opportunity to review the policy and feedback on standards. In ISOC all result are published through the RFC under the direction and approval of the IAB and IESG. RFC began with innovators discussing issues related to methods of creating computer networks. The RFC acts as a way of sharing ideas and getting feedback from others with similar interests. The workgroups of the ISOC act like the RFC in that they are threaded discussions and comments about different ideas that people have about Internet issues related to the project of the group.

While both organizations create and maintain standards, they each have their own method of monitoring and enforcement. The ITU has an active system of monitoring, as discussed in Chapter 2, to examine issues such as frequency use. The ITU has formal procedures for when standards are broken to ensure that the reporting is accurate and non-biased. ISOC has not created an enforcement body, as many of the standards it creates or endorses are held by others or are necessary for communication on the Internet and therefore obligatory for access to the Internet. An example of such a standard might be the domain name system or the IP addressing system. The different standards of the ISOC have more to do with organization and administration of the Internet than forcing conformity to make the standards comply with the available technology.

The development of standards by both institutions has created a need to manage those standards in some way. Both the ITU and the ISOC, through IANA, use registration to manage certain standards. In the case of the ITU, communication standards are managed through the satellite registry system so that proper distance can be maintained between communications satellites. IANA is responsible for maintaining policy and standards to registration of domain names. While the registration of satellites and domain names are two very different things, the comparison shows a common notion of responsibility in the management of their resources.

Institutionally the ITU and ISOC have a similar historical design. The ITU combines the study of many different technologies, which grew as a result of its merging with the IRC and developing interest in new technologies. ISOC is also made of multiple organizations to address issues related to the Internet. The member organizations of ISOC are the IETF, IAB, IESG, and IANA. Both organizations may be made of others, and each component organization contributes to a specific part.

The two organizations have much in common and their interests continue to align as the ISOC works with the ITU to create better Internet policy globally. ISOC is criticized greatly for being an American organization along with many of the other Internet administrative bodies. The move that the ISOC took to align itself with the ITU gives legitimacy to it. The ISOC and ICANN are both considered to be looking out for only US interests on the development of standards on the Internet according to some European states such as France. The statements about the role of ISOC and ICANN maybe true, but those that have organized these institutions have played an essential role in developing the technology and standards that have allowed for the global growth of the

Internet. The discussions about ISOC legitimacy are tricky since the Internet is relatively new for the general public. While ISOC is being criticized for its self-interests, there are no other organizations arising that are not aligned with national or regional interests as well. The influence of national interest is becoming less obvious with the ISOC since it has moved to work with the ITU and it is open to all people. The ITU is criticized for allowing too much equality between states in voting, but that equality helps lend a since of legitimacy to ISOC. If the ITU is viewed as legitimate and fair, which varies with opinions then ISOC accepted as being fair and less influenced by national interest. Most importantly, the relationship that has been formed between the ISOC, specifically the IETF, and the ITU-T illustrates how similar these organizations are. The partnership of the IETF and the ITU-T will help the ITU to create standards for the Internet that are produced by those that are best qualified to produce such policy.

This study has shown that while both the ITU and ISOC have much in common, there are many differences between these regimes. Both organizations create international standards and influence the way that the world communicates. It will be interesting to see how much closer these regimes work in the future as the Internet grows and the distinctions between telecommunications and the Internet blur even more. The fact that the ISOC is a new type of regime that is so open may have an effect on international regimes of the past such as the ITU bringing about a call for global democratic regimes rather than the state-centric regimes of the past with the ability to communicate with the rest of the world as a result of the Internet. The first signs of the merging are seen in the growing struggle between the producers of telephony and the rise of "Voice over IP." This will require future mediation and cooperation between the regimes in order to resolve this situation and those that may rise in the future.

This analysis has shown a common thread between the ITU and ISOC. That thread is presence of an elite in the working groups of both regimes. Working groups are a concentration of knowledge and power. As was discussed throughout Chapter Three, ISOC and the IETF working groups are open to all people, but there is a knowledge barrier that restricts many from joining. In addition to the knowledge barrier, there are barriers to access the working groups by those in regions with less developed infrastructure. The ITU also has an elite working group population. The working groups of the ITU are comprised of bureaucratic elite from government agencies and telecommunications companies. While the ITU is not open like ISOC, they are both composed of experts in their field. The power of the expert gives the standards created by the working groups in both regimes a greater sense of legitimacy. Working groups garner a large amount of power with their elite composition, but they seem to use that power appropriately. Even when deciding between equally important and viable standards options, working groups still act responsibly. No matter who creates standards, there is power that comes with legitimacy in a regime. This is true of the ITU, ISOC, and the WTO.   The regime, public or private, open or closed, is a concentration of elite power through knowledge.

The WTO example from Chapter One, illustrated how the regime framework applied to well-respected, and well-known institution. The WTO, like the ITU and ISOC, maintains standards based on a set of norms. The economic normative foundation of the WTO is free trade. The bureaucratic elite from member states create the norms and standards of the WTO. The WTO reinforces the role of the elite in the standards processes. The WTO has acted as a guide throughout this analysis helping to illustrate the design of regimes.

Regimes maintain power through standards, and give standards legitimacy. A regime exists when it is able to create accepted standards to govern over a certain field or issue area. The members of the regime must accept the standards of a regime for the regime to be successful. Therefore, regime standards must be legitimate. The production of standards by the elite give some legitimacy to standards, but the regime itself, also gives strength and legitimacy to the standards it produces. A well-known and respected regime, such as the WTO, gives automatic legitimacy to its standard by its reputation. Whereas a lesser known organization, would have a more difficult time creating acceptance for its standards, and might have to use higher level organizations, like ISOC, ITU and the WTO, to gain acceptance. The concentrated power that a regime holds is not necessarily negative, since it produces expert standards, but it does create limits for those outside the elite of knowledge and power. Those limits prevent others from having a voice in the creation of standards.

ISOC is still a very young organization and will develop as the Internet does, but it has taken a role as a leader in the world to help make the Internet better as a tool and environment. Even though ISOC is still developing, it is a regime with great influence and power throughout the world, ISOC creates norms and addresses issues that surround those norms at an international level. Working with the international organizations, ISOC enhances its power to make changes and enforce norms. ISOC's greatest strength of being open to all will make it more important as the Internet continues to grow throughout the world and allows people to share ideas and improve those of the past both through computer networks and society. It is still not clear what ISOC will become, it may become integrated fully into the ITU, it may grow on its own to become an even greater power, or it may die out with the advent of a new organization, but it is important to remember that ISOC has stepped up to take a leadership role and help integrate the world with communication just as the ITU set out to do in 1865.

Bibliography

______, 2000. “Bylaws.” <http://www.icann.org/general/bylaws.htm> ICANN.

______, 2000. “Generic Top-Level Domains” <http://www.iana.org/gtld/gtld.html> IANA.

_____, 2000. “IAB Overview” <http://www.iab.org/iab/overview.html> Reston: Internet Society.

______,1999 “ICANN Background” <http://www.icann.org/general/background.htm> ICANN.

______, 2000 “ICANN Fact Sheet” <http://www.icann.org/general/fact-sheet.htm> ICANN

______, 1999. Article S16. “International Monitoring Geneva: International Telecommunications Union.

_____ 2000. “The Internet is for Everyone.” <http://www.isoc.org/isoc/media/speeches/foreveryone.shtml> Reston: Internet Society.

_____ 2000. “ISOC Internet Standards and Protocols Program” <http://www.isoc.org/standards/index.shtml> Reston: Internet Society

_____ 2000. “ISOC Mission Statement.” <http://www.isoc.org/isoc/mission/> Reston: Internet Society.

_____ 2000. “ISOC Programs” <http://www.isoc.org/isoc/programs/> Reston: Internet Society.

_____ 2000. “Overview of the IETF” <http://www.ietf.cnri.reston.va.us/overview.html> Reston: Internet Society.

______, 1998. “Review of the ITU-T” ITU 2000 and “Draft Amendments to the Constitution of The International Telecommunications Union”, ITU-2000 Bureau, Geneva: International Telecommunications Union.

______, 2000. “Review of the ITU-T.” Geneva: International Telecommunications Union.

______, 2000. “Request for Comments (RFC) –Overview” <http://www.rfc-editor.org/overview.html> Reston: Internet Society.

Abbate, J. 1994. *From ARPANET to Internet: A History of ARPA-Sponsored Computer Networks, 1966-1988.* Ann Arbor: U. M. I.

Abbate, J. 1999. “Cold War and White Heat: The Origins and Meanings of Packet Switching.” *The Social Shaping of Technology.* 2d ed. Philadelphia: Open University Press.

Alleyne, M. D. 1995. *International Power and International Communication.* New York: St. Martin’s Press.

Baer, G. W., ed. and comp. 1981. *International Organizations 1918-1945: A Guide to Research and Research Methods.* Wilmington: Scholarly Resources.

Bradner, S. October 1996. RFC 2026 “Internet Standards” <http://www.rfc-editor.org> Reston: Internet Society

Chayes, A., and Chayes A. H. 1995. *The New Sovereignty: Compliance with International Regulatory Agreements.* Cambridge: Harvard University Press.

Codding, Jr. G. A., and Rutkowski A. M. 1982. *The International Telecommunications Union in a Changing World.* Dedham: Artech House, Inc.

Codding, Jr., G. A. 1990. *The Future of Satellite Communications.* Boulder: Westview Press.

Codding, Jr. G. A. 1995. “The International Telecommunications Union: 130 Years of Telecommunications Regulation” *Denver Journal of International Law and Policy*. Vol. 23:3 (Summer)

Cohen, B. 1983. “Balance of Payments Financing: evolution of a regime.” *International Regimes.* Edited By Stephen Krasner, Ithica: Cornell University Press.

Diehl, P. F., ed. 1989. *Politics of International Organizations: Patterns and Insights.* Chicago: Dorsey Press.

Dougherty, J. E., and Pfaltzgraff, R. L., Jr. 1981. *Contending Theories of International Relations: A Comprehensive Survey.* 2d ed. New York: Harper & Row.

Drake, W. J. 1993 “Territoriality and Intangibility: Transborder Data Flows and National Sovereignty.” *Beyond National Sovereignty: International Communication in the 1990s.* Edited by Kaarle Nordenstreng and Herbert I. Schiller, Norwood: Ablex.

Drake, W. J., and Frieden, R. M. 1998. “The Global Information Infrastructure” *Telecommunications in the Information Age.* Washington D.C. United States Information Agency.

Finlayson, J., and Zacher, M. 1989. “The GATT and The Regulation of Trade Barriers: Regime Dynamics and Functions”. *Politics of International Organizations: Patterns and Insights.* Edited by Paul F. Diehl Chicago: Dorsey Press

Genest, M. A. ed. 1996. *Conflict and Cooperation: Evolving Theories of International Relations.* Fort Worth: Harcourt Brace.

Goldstein, J., and Keohane, R. O., eds. 1993. *Ideas and Foreign Policy: Beliefs, Institutions, and Political Change.* Ithaca: Cornell University Press.

Hauben, M., and Hauben, R. 1997. *NETIZENS: On the History and Impact of Usenet and the Internet.* Los Alamitos: IEEE Computer Society Press.

Huntington. S. P. 1993. “The Clash of Civilizations?” *Foreign Affairs*, vol. 72, no. 3. New York: Council on Foreign Relations.

Keohane, R. O., and Nye, J. S. 1977. *Power and Interdependence: World Politics in Transition.* Boston: Little, Brown, & Company.

Keohane, R. O., and Nye, J. S., eds. 1971. *Transnational Relations and World Politics.* Cambridge: Harvard University Press.

Leiner et al. 2000. “ A Brief History of the Internet” <http://www.isoc.org/internet/history/brief.html> Reston: Internet Society.

Krasner, S. 1983. “Structural causes and regime consequences: regimes as intervening variables.” *International Regimes.* Edited By Stephen Krasner, Ithica: Cornell University Press.

Mahoney, E. 1993. “The Utilization of International Communications Organizations, 1978-1992.” *Beyond National Sovereity: International Communication in the 1990s.* Edited by Kaarle Nordenstreng and Herbert I. Schiller, Norwood: Ablex.

Mattelart, A. 1994. *Mapping World Communication: War, Progress, Culture.* Translated by Susan Emanuel, and James A. Cohen. Minneapolis: University of Minnesota Press.

Mattelart, A. 2000. *Networking the World, 1794-2000.* Translated by Liz Carey-Libbrecht, and James A. Cohen. Minneapolis: University of Minnesota Press.

Mitchell, R. B. 1994. “Regime Design Matters: Intentional Oil Pollution and Treaty Compliance.” *International Organization,* vol. 48, no. 3. Boston: The MIT Press.

Nordenstreng, K., and Schiller H. I., eds. 1993. *Beyond National Sovereignty: International Communication in the 1990s.* Norwood: Ablex.

Ostry, S. 1998. “Reinforcing the WTO.” *Occasional Paper 56.* Washington, D.C: Group of Thirty.

Puchala, D., and Hopkins, 1983. “International Regimes: lessons from inductive analysis.” *International Regimes.* Edited By Stephen Krasner, Ithica: Cornell University Press.

Rittberger, V., ed. 1993. *Regime Theory and International Relations.* Oxford: Clarendon Press.

Rutkowski, A. M. 1994. “Today’s Cooperative Competitive Standards Environment for Open Information and Telecommunications Networks and the Internet Standards Making Model.” http://www.isoc.org/papers/standards/amr-on-standards.html. Cambridge: Harvard-NIST Workshop.

Segaller, S. 1998. *Nerds 2.0.1: A Brief History of the Internet.* New York, TV Books.

Strange, S. 1983. “Cave! hic dragones: a critique of regime theory.” *International Regimes.* Edited By Stephen Krasner, Ithica: Cornell University Press.

Study Group 13, Rapporteur, 2000. Temporary Document 22 (PLEN) “New Version of the IP Project Description.” Kyoto: International Telecommunications Union.

Taylor, R. M. 1997. *Global Communications, International Affairs and the Media Since 1945.* New York: Routledge.

Van Dervort, T. R. 1998 *International Law and Organization: An Introduction.* Thousand Oaks: Sage.

Weiss, T. G., Forsythe, D. P., and Coate R. A. 1994. *The United Nations and Changing World Politic.* Oxford: Westview Press

Zakon, R. H. 2000. “Hobbes Internet Timeline v5.0” RFC 2235. <http://www.isoc.org/guest/zakon/Internet/History/HIT.html> Reston: Internet Society

Thomas Eugene Creely, Jr. was born in Tupelo, Mississippi on July 21, 1976. The son of a naval officer, Thomas has lived all over the country and the world. He graduated from Virginia Tech in May 1998 with a B.A. in Political Science, and minor in International Studies. Thomas began his M.A. in Political Science in August of 1998. While in graduate school, he worked as a graduate assistant, teaching classes and maintaining department computing resources. His academic interests include, Sino-American relations, South East Asia, and International Internet and Telecommunications Policy. Following the completion of his M.A. in March of 2001, Thomas began a career of government service with the U.S. Department of Defense as an analyst. He eventually plans to return to graduate school to pursue a PhD, after gaining experience in government service.