He who controls trade controls the world’s wealth, and therefore the world itself.
—Sir Walter Raleigh, c. 1600

STANDARDS AND STANDARDIZATION

The modern world is in large part defined by technical standards. In everyday life, standards define such diverse things as screw threads, paint colors, wine glass dimensions, and film speeds. In the information and communication technology field, such standards are documents that specify everything from the prongs on plugs to the software protocols that make the Internet work. Today, the essential purpose of international standards is to facilitate trade and commerce, although at times in the past standards have been established by nations or regions for defensive purposes, to impede invasion (either military or commercial), and to protect markets. Historically, standards have been set largely by volunteers in committees operating within a range of environments, institutional rules, and social practices, but they generally have espoused traditional principles of accessibility, democratic deliberation, public accountability, and balanced stakeholder representation. With the development of global markets, standards are increasingly being set at the international level, through institutions that operate by employing various forms of nation-based representation, participation, and voting. This book is about the process by which these standards are set and the forces that are re-shaping that process.

What this Book is and why it Matters

On the surface, this book is about standards and how they are made. But, more fundamentally, it is about the privatization—or what I call the enclosure—of that standards-making process. It is about closely related issues of democratic deliberation in societal decision-making and about the institutionalization of that process. This topic is increasingly important—as dynamic political, economic, social, and
other forces are dramatically re-shaping our technological society and our global economy—and as new actors are entering the traditional nation state based system of standards-making institutions.

Two key questions that are addressed here include, what is meant by open standards and what is the public? All actors seem to claim the high grounds of open standards and of acting in the public interest. These claims deserve critical examination and thought—given the policy decisions that governments, standards organizations, and private parties are now being called upon to make in re-shaping or re-directing the course of national, regional, and global policies and institutions. Technical standards will continue to not only define and limit the future of technology—but of society itself. They will determine what the technologies of the future are to be, and, in great part, who owns them, who gets to use them, and whose interests are served by them.

**Standards Setting Organizations**

The term Standards Setting Organization (SSO) refers to a vast array of organizations that set standards under a wide range of institutional rules and practices. This range of rules and practices involves, in part, the issue of how “public” or “private” the standards-making process is. Some, known as private “consortia,” have restricted or well-defined “members,” upon which strict rules can be imposed. Others, of initial interest here, are the more formal traditional public bodies that include three major international SSOs: (1) the International Organization for Standardization (ISO); (2) the International Electrotechnical Commission (IEC); and (3) the International Telecommunications Union (ITU). Also of interest here are the various national bodies that send delegates and technical experts to the international meetings. The tension and dynamic between these formal traditional bodies and the many newer emerging industry consortia is the primary focus of this book.

The oldest of these traditional organizations is the ITU, which was established in 1886 in Geneva, Switzerland, and is now part of the United Nations. The ITU, perhaps the first international intergovernmental organization, was founded as a treaty organization. Its initial purpose was primarily related to interconnection of telephone networks and radio communications—new technologies at the time. Until the mid-1980s, the telephone industry was dominated by nationally owned (or regulated, in the case of the United States) monopolies, and technical standardization served a quasi-governmental function, with participants acting as national government representatives. In the 1992-1994 timeframe, the CCITT (Comité Consultatif International Télégraphique et Téléphonique), a part of the ITU, was renamed the ITU-T (telephone) sector. Standards produced by the ITU are called “Recommendations.”
The two other institutions that are also important features on the international landscape of standardization are the IEC, founded in 1906 with the development of electricity industries, and the ISO, formed in 1947, as the post-World War II successor to the International Association for Standardization (ISA), which was founded in 1926. The IEC standardizes electrical and electronic-related topics and the ISO standardizes everything else. With the development of computers and the need to standardize an increasing variety of hardware interfaces and software functions, the ISO and IEC formed a joint organization in 1988 for information technology standards known as Joint Technical Committee 1 (JTC1). JTC1 took over management of all computer-related ISO (e.g., software) and IEC (e.g., hardware) standards work. Now, with the convergence of telecommunication and computers, the complexity of coordinating work among the various standards-making organizations—ISO, IEC, JTC1, and ITU-T—has become increasingly more challenging. All four organizations operate under different organizational structures, different “memberships,” and different governing directives.

Traditional System Structure and Practices

The ISO, IEC, and ITU-T share certain structural similarities. They are hierarchical, with layers of governing committees, representing a taxonomy of technical topics. Within the ISO and IEC structures are committees called “Technical Committees” (TC) and “Sub-Committees” (SC). In the ITU-T, such committees are referred to as a “Study Group” (SG) and “Working Party” (WP). The TCs and SCs of the ISO and IEC, along with the SGs and WPs of the ITU-T, are all located at the top of the hierarchical organization chart. The actual detailed technical work—including the drafting of technical standards documents—takes place at the bottom level of the hierarchy.

In the ISO and IEC, a bottom level group is usually known as a “Working Group” (WG). In the ITU-T it is usually referred to as a “Rapporteur Group” identified by a “Question” the group addresses. Committee meetings above the bottom level are often referred to as “plenary” meetings because they deal with broader management, policy, coordination issues, or oversight of the technical work. No technical work is performed in plenary meetings. The ITU-T’s SGs (thirteen exist today) are renewed or disbanded, and sometimes re-named, routinely on a four-year cycle known as a “Study Period.” In contrast, the ISO’s over 200 TCs and the IEC’s over 100 TCs remain in existence until specifically changed. As an indicator of the scope of its worldwide standards activity, the ISO estimates that 30,000 individual technical experts participate in its work in 2,850 various technical committees, subcommittees, and working groups, and that “... there are, on average, a dozen ISO meetings taking place somewhere in the world every working day of the year.”
Emerging Consortia

Beginning roughly during the late 1980s, due to a variety of forces discussed later in this book, a new breed of SSO began to emerge, known generically as the consortium or forum. These groups tended to be more focused on specialized technical areas and to have a more limited scope of membership—usually with a particular economic or business interest around a specific technical standard or industry—rather than the nation-based membership of the traditional system. Often, consortia followed a different business model, deriving their income from membership or licensing income rather than from publishing, as did the traditional bodies. These groups have proliferated, although some have proven somewhat ephemeral, depending on the commercial fortunes of their technical foci. The term consortium has come to refer to roughly to any of the scores or hundreds of SSOs that are not part of the traditional system. Generally, although there are major exceptions, consortia represent a privatized process clamoring for status and for access to governmental and institutional procurement markets that traditionally have favored formal national, regional, or international standards.

CONTEXT AND SIGNIFICANCE OF THIS STUDY

This study of the privatization of standards and standardization seeks to establish a framework of analysis for public policy discussion and debate. This book and its topic fit within the larger issues of globalization and trade, as well as with such related issues as technical innovation, access to information and media, intellectual property, and emerging industrial economic development. These are not transitory issues. They are deeply problematic, and how they are resolved will have much to do with determining the shape of the world we will be living in the coming decades—and handing on to future generations.

Globalization

The noted economist Joseph Stiglitz defines globalization in terms of the continuing decline in transportation and communication costs, and the reduction of man-made barriers to the flow of goods, services, and capital. He comments that:

...we have a process of “globalization” analogous to the earlier processes in which national economies were formed. Unfortunately, we have no world government, accountable to the people of every country, to oversee the globalization process in a fashion comparable to the way national governments guided the nationalization
process. Instead, we have a system that might be called global governance without
global government, one in which a few institutions...and a few players...dominate
the scene, but in which many of those affected by their decisions are left almost
voiceless. (Stiglitz, 2003, pp. 21–22)

The principle institutions that Stiglitz is referring to include the International
Monetary Fund (IMF), the World Bank, and the World Trade Organization (WTO),
although the lesser known ISO, IEC, ITU, as well as the numerous other SSOs,
could also fit well within the point he is making. The other “players” he is referring
to include government and private commercial interests that guide or otherwise
influence these institutions.

Stiglitz’ primary concern is the failure of global institutions to meet the world’s
needs in our current age of globalization, and he attributes this failure to the ascen-
dancy during the 1980s of a “free market ideology,” championed by the political
régimes of President Ronald Reagan and Prime Minister Margaret Thatcher, in the
United States and in the United Kingdom respectively. This ideology became hege-
monic and carried with it a global wave of deregulation and privatization of a vast
array of formerly public functions and enterprises, enforced by the aforementioned
institutions and the economic interests that controlled them. Stiglitzoptimistically
sees much of this free market ideology as having run its course, tempered now by
the financial and economic debacles of the late 1990s and early 2000s and a general
backlash against globalization. The 2008 U.S. and global economic collapse and
government interventions may have finally brought the era of “free market” ideol-
ogy to a close, globally if not entirely in the United States. Stiglitz finds it essential
to establish a new or reformed set of global institutions responsive to public needs.
This book addresses how these influences of privatization and deregulation have
affected the international standardization system—a crucial element of international
trade and development. This book also seeks to help establish a framework for policy
discourse around these issues, which will facilitate or guide such a reformation. This
book is particularly timely in this respect, given the dramatic changes that have
occurred in the economic and political landscape since 2008.

Audience

This Book was intended to address three audiences: (1) academic—to provide a basis
and framework for further academic research, (2) policy makers—as an exercise
in critical thinking about policy proposals and basis for analysis of the terms of
discourse that are used in policy arguments, and (3) practitioners—to offer histori-
cal and structural (organizational) contexts to their work and to encourage them
to question the hidden, taken-for-granted, and potentially misleading assumptions
behind the everyday terms used in their committee work (e.g., “open,” “public,” “private,” etc.). It is intended that the latter two audiences should find this book to be of extremely practical value.

ENCLOSURE THEORY—A FRAMEWORK OF ANALYSIS

We take the concept of private property and the notion of ownership as fundamental to our society. It is interesting to note, however, that it is largely a modern concept tracing from the Enlightenment. Our assumptions about property are so pervasive that we seldom consider that it is largely alien to most older cultures—at least in its present form—and does not translate into many developing societies. Most of human history was experienced in tribal societies wherein modern conceptions of property or ownership have little meaning.

The term “enclosure” was used beginning in 15th century Britain (i.e., the Enclosure Movement) to describe the Parliamentary laws and the practices that were used by a rising commercial merchant class to “fence off” (i.e., privatize) what had traditionally been a commons (also known as “open fields”) inhabited by rural peasants in an agrarian subsistence economy. The underlying theory was that land is more productive when held in private hands than when held in common. Thus, the English Parliament justified the enclosure of the commons and the subsequent evictions on the basis that privatization would lead to more productive use of the land (i.e., greater agricultural production) and thus to the greater good of society. Although some economic research challenges this base conception that privatization is an unambiguous economic good (McClosky, 1972; Humphries, 1990), it represents a firmly entrenched belief system that has had an enormous formative influence on British and American culture—and subsequently on global economics and politics. A corollary to this theory that has grown into an ideological belief and has played a predominant and recurring role in U.S. public policy formation could be stated as the public interest is best benefited by benefiting private interests—otherwise more recently known as “trickle down” economics.

Recent legal discourse has borrowed the terminology of enclosure, characterized as the Second Enclosure Movement—enclosure in the age of digital information—as the enclosure of information and ideas rather than of land (Boyle, 2001). This notion of enclosure is logically an extension of the notion of “intellectual property”—another Enlightenment concept. The Enclosure Discourse is explored in detail later in this book. Here the focus of interest is to use Enclosure Theory to examine the privatization of the standards process and its implications for society and for technical innovation—rather than on the enclosure of the content of standards. The full impact of intellectual property rights (IPR) on standardization and
on technical innovation and economic development is a vast and rapidly growing topic, but unfortunately a thorough treatment of the topic is beyond the scope of this book and must be left for future examination.

SCOPE OF THE STUDY

Abstract Approach

This work approaches the subjects of standards and standardization, Enclosure Theory, rhetoric, and theories of democratic governance at a rather abstract and theoretical level. This approach was considered necessary in order to build a rigorous basis for the analysis of actual social practices and political economic discourse—and for those researchers that may wish to build upon this foundation. Some individual readers may find such theoretical rigor tedious or unnecessary, in which case they can simply skip over parts of it and still benefit from the analysis that follows. Likewise, historical background is included because it is this author’s belief that entirely too much policy discourse today is essentially ahistorical in nature, and that historical context explains much of why things are the way they are. How we got here is important.

Interdisciplinary Approach

This book seeks to bring together two worlds that ordinarily have little to do with one another—the technical world of standards geeks or engineers from the specialized and often Balkanized world of standards bodies and the specialized world of policy wonks, economists, and political scientists. In this respect, this book is a highly interdisciplinary undertaking, as must be the case for any compelling discussion of standardization. No single discipline provides all of the tools needed to understand such a multidimensional field. This author came from over three decades of computer and communication engineering to try to find out how our society made its decisions about what technologies got invented and how and why they were applied to what. This quest required reaching beyond engineering methodology and technology into political philosophy and into perhaps the oldest academic “discipline” of all—rhetoric.

Standards Research

Another purpose of this book is to contribute to the basis for “Standards Research” which began to emerge as a distinct field of academic study in the late 1990s. Ini-
tially prompted by a couple of books, government studies, and university courses, this fledgling field has, over less than a decade, led to the development of a set of periodic conferences, academic journals, and the beginnings of a literature tradition of its own. Advancing and improving the standardization process is an important undertaking because technical standards define the modern world around us. Dr. Kai Jakobs of the University of Aachen observes that “standards setting is big business today…” with the cost of developing a single ICT standard “easily running into seven- or eight-digit numbers”—not to mention the possibly life-or-death strategic role of standards for companies large and small. Yet, he further observes,

Knowledge about the issues surrounding IT standards and standardization is still rather underdeveloped. Curricula are few and far between, and the number of researchers and scholars with an interest in the subject, albeit increasing, is still fairly small. Possibly even worse, relevant knowledge also seems to be scarce within industry. (Jakobs, 2005, p. viii)

Establishing a legitimate field of research with a body of literature is important because universities will not establish related curricula without a publishing path for their faculty and career path for their students.

One of the most challenging problems with a new field such as standards research is its inherently interdisciplinary nature. Standardization cannot be well understood without examining it from multiple viewpoints. Some of these perspectives include economics, political science, behavioral sciences, and business, as well as engineering and computer science—and none of these provides a complete picture in itself. It is hoped that Enclosure Theory, and this book as a whole, will provide a useful interdisciplinary framework of analysis for further study.

**ORGANIZATION OF THE BOOK**

This book is organized into eight chapters. A brief description of each of the chapters follows:

**Summary**

Chapter I includes the Introduction which identifies the research problem—that of the increasing privatization of the traditional formal international standardization system. The chapter sets the scene for the study and the rest of the book by defining research questions and the rationale for its approach to these questions. It then summarizes the discourses on Enclosure and on Standards that will be examined, and
describes the methodological approaches and the scope of the study. The chapter closes with comments on the intended audience and the perspective of the author.

The study itself will begin in Chapter II, providing a broad historical background on standards and standardization practice. This history will begin with a broad overview based on historical practice, provide a definition of standards, offer a description of the structure of the international system and how it emerged, and finally focus on the U.S. system and its significant structural and ideological divergence from the European and international standardization system.

Chapter III reviews the literature and discourses that inform the study and are pertinent to its central questions, including the relevant discourses on Enclosure and on standards and standardization, and drawing primarily from the disciplines of economics, law, social studies, and political philosophy. These discourses establish the key concepts, terms, and arguments that will be explored later in the book.

Chapter IV examines the theoretical and methodological approaches taken in the study. This examination will include discourse analysis, as it is to be applied here, the relationship between theory and method, relevant discourses and social practices, theoretical perspectives on discourse and on the public sphere, theories of rhetoric and discourse, and political economy. The basic research questions are then established.

Chapter V situates the discourse of standardization and identifies and attempts to establish meanings for certain essential terms of the discourse—namely, public, private and open. From the perspective provided by examining such terms and their meanings, the book, in Chapter VI, reviews the institutional history of the principal international organizations that form the basis of the traditional global standardization system: the ITU, ISO, and IEC.

Chapter VII proceeds to an analysis of certain actual discourses and argumentation surrounding standardization and consortia—drawing on influential public policy documents (including U.S. Congressional testimony, E.U. policy studies, and rebuttal papers). Finally, Chapter VIII states the results, draws conclusions, makes recommendations, identifies the study’s limitations, suggests areas and paths for further research, and makes several concluding observations.

**Advice to the Reader**

The heart of the book is in Chapters IV, V, and VII—the analysis and the framework defined for this analysis. Chapters IV and V provide a methodical and terminological framework for how the policy discussion of standards development and role of the consortium is being analyzed. Chapter VII is the analysis itself and the essence of the book. The early chapters and Chapter VI set the stage, providing the antecedent background that provides the contextual framework on which the book relies in terms
of history, language, and literature. Readers already familiar with this background might skip over this material and refer back to it as needed. In particular, Chapter III provides an extensive review of a range of applicable literature that should be of interest to academic readers, and it is hoped this material will provide a useful survey and resource to future researchers. There are few published works (relatively speaking) in the area of standards and standardization and it is hoped that this work will further the understanding of standards theory and development.

CONCLUSION

One purpose of the book is to critically examine the dominant discourse of standardization, which lies within a larger discourse on globalization, geopolitics, trade, and foreign policy. The dominant discourse for thirty years in this arena has been a celebration the many successes of globalization. That dominant discourse has become severely challenged in recent years for reasons detailed by Stiglitz (2003), Gray (1998), Kupchan (2002, 2002a), Khanna (2008), and others. It isn’t “globalization” itself (simply a consequence of technology) that is suffering a backlash, but the institutions and the ideology that rode the wave of globalization. Perhaps this backlash is most recently evidenced by the 2008 collapse of the Doha round of WTO talks, as well as the dramatic 2008 collapse of major national and global financial institutions. The enclosure of standards and standardization has been an aspect of this global wave, and as the wave subsides, this analysis can help re-frame the policy discourse around standardization for a newly emerging global order.

By laying the groundwork for Enclosure Theory as a framework of analysis, it is hoped that further studies by this author and by others can build upon it. This book begins the process by examining the enclosure of the institutions and products of standardization and the underlying economic and political logic. The pressures of globalization and its emerging political backlash make resolution of current global trade and economic development issues urgent. For example, the global standards system is challenged today by the emergence of new economic and industrial players—particularly China.

As the standards system became increasingly privatized by economic players (e.g., consortia and patent pools or license authorities formed around technical standards and dominated by Western or Japanese corporations), China found itself to be an outsider with little or no patent position and having to pay royalties even though it manufactures much or most of actual end products. As a result, China has moved forward recently with its own initiatives, both domestically and within ISO, IEC, and ITU, to standardize competitive versions of technologies that have served as the underpinning much of the nation’s production (as well as new tech-
China has been able to take these initiatives because it has a domestic market sufficiently large to make its own standards and technologies economically viable, regardless of international markets (Stuttmeier, 2006). China has also made a substantial effort to participate in and understand the formal international standards system (with significant government backing), attending meetings in substantial numbers, hosting meetings, and undertaking the burden of committee secretariats whenever they become available.

During the 1990s, Korea became an important global technology player and moved well up the ladder of economic development, but its influence in the international standards system was limited because of its relatively small domestic market. With China’s rather sudden emergence and with Korea’s experience and its cultural and economic ties with China, the calculus of influence is changing dramatically in Asia and globally.

China and Korea are but two examples illustrating how the locus of technical innovation, knowledge production, and global markets are changing. There are others. Technical standards will be a crucial element of trade and economic development in the coming decades. It is important to understand the factors that shape the standardization process if it is to be responsive to the needs of commerce and of our emerging global society. It is hoped that this book can advance that understanding.

REFERENCES


ENDNOTES

1 The term volunteers used in this context refers to the participants who are either individuals, consultants acting as individuals or on behalf of voluntary clients, or as employees sent by organizations acting on a voluntary basis (i.e., the sponsoring standards body in not paying the participants to make standards). “The active participants are ‘volunteers’ willing to spend substantial time and travel money” (Farrell, 1996, p. 2).

2 <http://www.iso.ch>.

3 Columbia University Professor of Economics, of International and Public Affairs, and of Business, and recipient of the 2001 Nobel Prize in Economics.

4 By critical thinking, it is meant the discipline or habit of routinely identifying and questioning the unstated assumptions that underlie one’s own, as well as others, ideas, narratives, and truth claims.

5 The Enlightenment was a broad social and political movement in the west during the 16th through the 18th centuries that represented a critical questioning of traditional institutions, customs, and morals, and its values centered on principles of freedom, democracy, rights, and reason. The Enlightenment resulted in many of the political and economic ideas that shaped the modern world, known as classical liberalism, including individual rights, the rule of
law, private property rights, science and rationality, the public, democratic governance, socialism, and capitalism.

6 The term “commons” in this context does not mean “owned” in common (as we take the idea of “public” ownership today), but rather the notion of ownership or property is entirely absent.

7 Virtually all public policy proposals are couched in terms of the “public interest.”

8 Examples include DVD formats, MPEG compression, 3G Wireless telephony, WiFi, RFID, and home networks.

9 For example, see Korea’s Ministry of Information and Communication IT839 Strategy (MIC, 2004).