

Standards: The Corporate Edge

A Handbook for the Busy Executive

Helen Delaney



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Introduction

Standards are too important to be the exclusive preserve of technical experts.

In more ways than one, this statement by the European Commission¹ signaled the end of an age of innocence that had lasted approximately one hundred years. Almost overnight, the technical, virtually invisible activity within companies known as standardization moved up the corporate ladder and into the executive suite. Only one thing could have driven it there: the power to generate profit.

Standardization might have lived forever in obscurity but for an event that changed the way the world did business: a call by a group of governments for a worldwide reduction in tariffs.² The marketplace, like nature, abhorred the vacuum. It responded with a new competitive device: technology. Standards. In no time, standardization, like an understudy waiting in the wings, stepped out of obscurity and onto the world stage.

What is a standard, exactly? It has been defined as an agreed upon way of doing something. Standards are skillfully constructed tools of industry and commerce. They are technology in real time, living documents possessed with limitless versatility. Standards may define products, set their characteristics, parameters, or levels of performance. They may prescribe production processes, or they may be methods by which products are tested. Standards may be the specifications in a contract, or they may be a sign, a known quantity that signifies integrity. They are a language of trade used by buyers and sellers. They are passports to world markets. They are regulations. Standards, when they are very good, are synonymous with quality and market relevance. Standards can impart safety to products and interchangeability to parts. Standards are references, weights, and measures. They make the pieces fit. They are states of the art, technological achievements that are beyond calculations of worth. Standards are the corporate edge.

This is not a handbook for those whose interest in standards is academic. It is not for technical experts. They already know what standardization is about. This handbook is for people in business. It is for people for whom time is money; and so, it is short and simple. Also contributing to this book is author, Laura Hitchcock, who is a corporate executive from one of the greatest companies in the world. For that reason alone, she is worth listening to.

Above all, this handbook is about the way today's markets are won or lost with standards, about high-tech competition and strategy, and how it is formed, not by salesmen, but by scientists.

1 *Green Paper on The Development of European Standardization: Action for Faster Technological Integration in Europe*, COM(90)456, 8 October 1990.

2 The General Agreement on Tariffs and Trade (GATT) of 30 October 1947. The GATT 1994 established the World Trade Organization.

A Word About Language

As in any other field, people in standardization communicate with each other in their own language. It isn't difficult, it isn't complicated, and, outside of a technical committee, it isn't technical. It's colloquial. For instance, standards are not "set". They are *developed*. People who *develop* standards are *participants*. Sometimes they are called "stakeholders", but *participants* is the term more commonly used.

Sometimes the word *standard* is used as an adjective, i.e., a *standard specification* or a *standard test method*. In this handbook, colloquial terms will be italicized, and if their meaning is not obvious, they will be translated.

This handbook is dedicated to Barbara Schindler, whose idea it was, and to Laura Hitchcock, who took time - a most precious commodity - to contribute to this handbook, my deepest thanks.

Chapter One: The Basics

Standardization is unimaginably technical, as is computer science. Yet, the laptop has become the indispensable, ubiquitous corporate accessory. And every executive knows all he or she needs to know about the irreplaceable computer; and that's how to use it. It's a tool. Nothing more. And so is standardization.

This handbook has one main objective. It is to introduce standardization as a tool, a corporate function that will get the company out in front. It is not necessary to understand everything about it to make it work for the company. One does not have to be an engineer or a mechanic to drive a car.

Myths

Before going to the facts, let's review some of the myths surrounding standardization. Here are just four:

The most widespread myth is that **Standardization is boring**. The truth is this: nothing that increases market share is boring.

This is a good one: **Trade is regulated by the best, most up-to-date standards**. Nonsense. Trade policies are based on exporting more and importing less. Standards are used to accomplish this goal. They're never used to help the competition, even when they're better. Especially when they're better.

This is commonly heard: **International standards are the answer to barriers to trade**. Question: What happens when they *become* a barrier to trade? They can.

This may be the most damaging to a company: Standardization should be delegated to the Engineering Department and left alone. They know what to do. But they don't know what you want to do if you don't tell them. They need to know the company's strategy. And you need to know what *they're* doing when they go to those standards meetings.

What follows is fact.

Company Standards

A company standard is intellectual property, *developed* within the company for the company. It has a specific purpose: to give the product or the service a unique quality and the company an edge over its competitors.

When customers refer to a company as having “high standards,” they mean that what the company produces satisfies their sense of quality. It’s memorable. Perhaps the product is unusually beautiful or well *designed*. Maybe it *performs* well or lasts a lifetime, or the service rendered is outstanding.

A company standard may be the *specification* for the product. A *specification* is the amount of fat in the hamburger. It’s the pigment in the paint; it’s that you’d-know-it-anywhere red on that fabulous sports car. A company standard is the essence of the perfume, the syrup in the cola. It’s the number of seconds in which salt must be added to the fries after they leave the fat. It’s the wonder in the wonder drug.

It is the thing that makes the product what it is. It is what makes the product different, or unique. The standard is what makes it possible to repeat the product, in its uniqueness, over and over again. It’s that famous brand latte that you can drink in downtown Seattle, or in Manhattan, in London, Tokyo, or Beijing. It’s how the coffee is grown, and picked, blended, and roasted, and how it is brewed, and to what temperature, and how it is combined with milk and other accoutrements. If the standard is *applied* consistently, the latte will always taste the same. It will meet the customer’s expectations wherever it is served.

Whatever kind of standard it is, whether it is the formula, the terms of the service contract, the material in the product, the organization of the assembly line, or the inspection process, it is the company’s *agreed upon way of doing something*.

Sometimes the company standard is the brainchild of the resident genius. Maybe he or she is an engineer, a chef, a physicist, or a chemist. Sometimes a team of experts develops the company standard. But they are employees or hired experts of the company, the standard belongs to the company, and it is rarely, if ever, shared. It is the product of research, innovation, time, and money. It is an investment. It is proprietary.

One last thing about company standards: Companies not only develop standards for their own use, they *use* standards developed by others. These are not, strictly speaking, company standards.

Industry Standards

The industry standard is different from the company standard in that it is not secret; it is shared by companies. Its function is different as well. It does not necessarily serve the product by making it unique or different. It is the solution to a common problem. Companies may develop industry standards as members of a trade association, or create a *consortium* for that purpose.

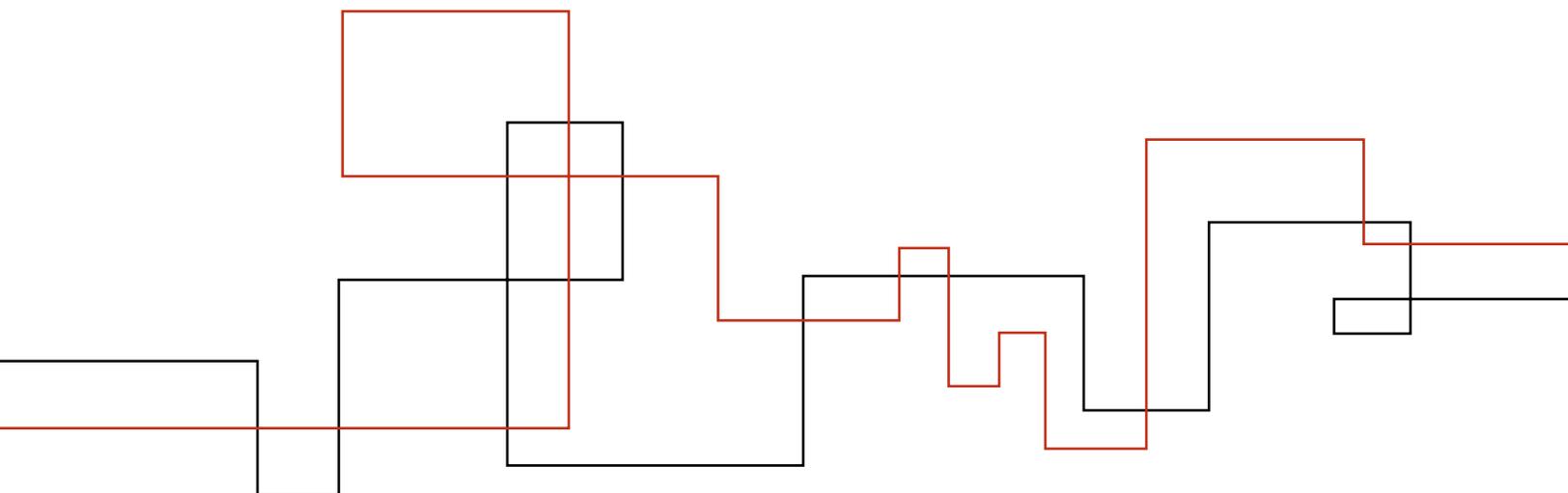
An industry standard may deal with the health or safety aspects of a product. It may prescribe a sterilization process for bottling saline, for example. It may define, or categorize, or provide measurements for things in a uniform, or standardized way, such as a standard method of measuring square footage for real estate transactions. It may make components interchangeable or establish minimum acceptable thickness values for insulation.

The industry standard takes care of certain basics so that individual companies can concentrate on what they do best, or what they do that is distinctive. It isn't apple red paint with a triple gloss or an exotic blend of coffee beans roasted for exactly 42 and one-half minutes. It's not glamorous. It is organization. It is housekeeping.

Companies developing an industry standard may or may not invite others to join them. Some industries invite their regulators. Some invite their customers. And some prefer to work without "outsiders" present.

Obviously, this kind of *standards activity* requires a larger, more diverse group of *participants*. A *standards activity* is more interesting at this level because the participants are competitors. Some *participants* will come to the table with their own company standard, *or a way of doing things* in which they are already invested.

This is a good time to discuss the *process*, since it is at this level that standards development requires a standardized *approach*.



The Process

Standards are not *developed* willy-nilly. There are standards for developing standards. The colloquial term for the standard for developing a standard is *the process*.

There is no one “right” way to develop a standard. Just as there is no one “right” way to make coffee. There is a *process* for making a café latte and there is a *process* for making a double espresso. The product is the product of the *process*. So it is with standards.

There is the company *process*, for example. The process for developing a company standard may be the way the company makes all of its decisions, or its standard operating procedure. One company may have an open debate among a group of employees on the content, or value of a proposed standard, and the standard may be decided upon by a *consensus* of the group.

Another company may ask its technical experts to offer several versions of a standard to the head of a department, and he or she may arbitrarily vote it up or down. One person, working alone, may have total responsibility for creating the standard and *applying* it to the production or testing of the product. Whatever the procedure, or *process*, it's private, it's cultural, and how a company standard is developed is - literally - nobody else's business.

But when the *standards activity* involves more than one company, i.e., representatives of an industry, the *process* has to treat different and/or divergent interests in a fair and equitable way. It cannot be arbitrary or secretive, for example.

The process may also, under certain circumstances, be more inclusive, and include an “outside” interest, such as a government representative. If regulation is looming, for example, the industry may decide that a government representative can, by *participating*, inform the standard's content so that it meets the regulation's objectives. A standard developed by the industry and the government together might mean that the industry will have a regulation it can live with. Or better yet, no regulation at all.

Again, the *process* is used to create the desired standard; in the above case, a standard that will take the place of a regulation or become one, in the company's case, a standard that will give the product its edge. In both cases, the *process* should be appropriate to the standard's intent, goal, or use.

The Process : Continued

A few strong instincts, and a few plain rules.³

The *process* is a business practice. And like any other business practice involving competitors, it is guided by a set of ethics, i.e., rules.

The general aim of the rules is fair play. As the rules of fair play lend *integrity* to a sport, so it is with standardization. A good process lends integrity not only to the activity of standardization, but to the technical experts involved in it, and to the standards they produce.

Here are the three best-known rules:

Rule Number One: the process must be *open*. This means that a standards activity cannot be unduly exclusive. For example, an industry *standards activity* cannot be credible if it purposefully excludes its smaller members, or its largest member, or any member.

Some processes are more *open* than others. The company process can obviously admit only company members, or consultants paid by the company. The industry process usually admits only industry members, although they may invite others.

A *full consensus process* will include *participants* from three general categories: *producers, users*, and those with a *general interest* in the outcome of the standard (this means they have no *proprietary* interest in the standard; they may be academics or government representatives).

Some processes will admit only those from one country, or one region. Some international processes will admit only an official delegation per country. The rationale is this: The number or kind of *participants* in the process is directly related to the use or *acceptance* of the standard. That is, people who develop a standard, and/or people who are invested in a particular *process*, are more likely to use it. There are exceptions of course. One need only think of the Microsoft Windows standard (a company standard), or the Internet Standards (developed by small, highly specialized teams). These standards have virtually universal acceptance. But wide acceptance of standards developed by narrow or selective groups are the exceptions, not the norm.

³ William Wordsworth, *Alas! What Boots the Long Laborious Quest?* 1815.

Volunteers

This is a good time to digress for a brief moment and discuss the term *volunteer*.

The term *volunteer* is used to describe the *participants*, or those that make up the labor force of the non-governmental standards development process. These are the company representatives, the consumers, the government representatives, or the academics, i.e., the experts who populate the *technical committees*. They are so named because they come to the process *voluntarily*, and are not paid for participating in the activity. The standards they develop are *voluntary* standards, that is, they have been *developed* voluntarily and they are *used* voluntarily, either in the marketplace or by governments.

Back to the Process

Rule Two: Every *participant* is *equal* and no one *interest* can *dominate* the process. What this means is that in a *technical committee*, all of the *participants* have equal *rights*. It means that every *interested party* has the right to put forth his or her position and to be taken seriously, no matter how small, or seemingly insignificant, or controversial that position may be. It means that all the participants have the right to vote, and that votes are counted equitably.

Consensus. The third basic rule governing standardization has to do with how decisions are made. Consensus is casually defined as “A collective opinion; general agreement.”⁴

Consensus does not require unanimity. It is not based on a simple majority vote. The *consensus process* does require a *ballot*; and there must be a certain percentage of affirmative votes. But *consensus* requires something more. The *committee* must deal with every dissenting opinion, or *negative vote*, and attempt to *resolve* it. The consensus process permits the negative voter to argue his or her case *before and after* the vote has been taken.

The issues may involve the technical content of the standard, or the process itself. (Was it fair?) If the negative voter cannot convince the committee to change its position, that is, the argument has been found *non-persuasive*, that person may make an appeal on several (higher) levels within the standards organization. At some point, the appeal is exhausted, and there is either a change in the standard or it stands as voted. But the dissenter has had many opportunities to be heard.

The three rules cited above are part of a standards code sometimes referred to as *good practices*. Whether they are called good practices, best practices, or ethical conduct, their purpose is to ensure that the game of developing standards is played in a fair and non-discriminatory way. In general, the rules of the process are based on the principles of democracy.

As the process grows more complex and more layers of interest are added, the number of rules increases exponentially.

We return now to standards.

⁴ Funk & Wagnalls, *Standard Desk Dictionary*

Full Consensus Standards

These are the five star standards. They involve more interests, and their use, or *application*, is more universal. Developing these standards requires not only a wide range of experts, but also a team of professionals with extensive organizational, publishing, and distributing skills. Full consensus standards are developed in standards developing organizations, colloquially known as *SDOs*.

Before a standards activity becomes a formal undertaking in a SDO, the organization will generally seek some kind of assurance that there is a need for the standard. Agreement on this point does not have to be unanimous. As a matter of fact, there may be strong objections to the undertaking. It has been said that there are two reasons to be involved in a *standards activity*: one, to make sure that a standard is developed, and two, to make sure that it is not.

To be, or not to be: that is the question:
Whether 'tis nobler in the mind to suffer
The slings and arrows of outrageous fortune,
Or to take arms against a sea of troubles,
And by opposing end them?⁵

Standardization begins with contention. As in nature, the struggle for survival and dominance begins immediately among competitors and users and, in the case of full consensus standards, any and all who have a *stake in the outcome*. Starting at the point of whether or not to create a standard, divergence is at the core of every issue that confronts the technical committee: the *scope* of its work, its *content*, its *application*. Standardization is literally a living organism that seeks sustenance in debate, drive, and passion.

Full Consensus Standards: Continued

The Technical Committee

The *technical committee* is where the characteristics of the product are determined by a group of people with knowledge and experience. It is where lines will be drawn, and benchmarks marked. This group of people will make the statement of what the product is, how it is to be manufactured, how it is expected to perform, and how it is to be tested and proven.

In the case of full consensus standards, it is a diverse group, and not all of them are interested in companies' abilities to make a profit. Very few, if any of them are interested in *your* company's ability to make a profit. That is why the companies that understand the *process* send skilled advocates to these committees.

The diverse committee will undoubtedly include your competitors. It will include your customers. And, if your product is regulated, it may include your regulators. It will include people who have only an academic interest in the standard to be created. No one will be vitally interested in what your company has at stake except you.

With all that's at stake, there is always the inclination among *participants* in a technical committee to *control the outcome* of the *process*. There is nothing inherently wrong with this bent. It goes to the heart of competition, and competition lends vitality and dynamism to the activity of standardization.

What, then, keeps a technical committee from anarchy? The rules and a non-partisan guardian: the *standards developing organization*. Standards developing organizations are discussed in more detail in a subsequent chapter.

⁵ William Shakespeare, *Hamlet, Part III, i.,56*

Chapter Two: Tricks of the Trade

Barriers to Trade

*There was a little girl,
Who had a little curl,
Right in the middle of her forehead;
And when she was good
She was very, very good,
But when she was bad she was horrid.⁶*

The same is true of standards. Like anything else with enormous potential for good, they can be used to create mischief. On the positive side, they move trade, make the world healthier and safer, and transform chaos into order and progress. They foster prosperity and make technology available to those who do not have the means to create it. But flip the coin and these same wonderful inventions can become instruments of unfair competition.

Chances are good that companies that want your share of the market are actively and skillfully engaged in standardization. Worse case scenario? They can “standardize” your product off the market. Creating a barrier to trade doesn’t have to be rocket science. Just the use - or misuse - of a simple **standard definition** can do the trick.

This is exactly what happened to a group of manufacturers of roofing tiles in Country A. Country A’s manufacturers made many of its roofing tiles of fiberglass, while Country B’s manufacturers favored an asphalt-based material. A’s manufacturers decided to export the lighter product (fiberglass) overseas to Country B. In response to the threat of “foreign” products on home soil, Country B’s **standards writing technical committee** responded by defining a roofing tile as being made of an asphalt-based material, i.e., it **specified** the material. A’s manufacturers were out of the game on B’s home turf. Could it be that simple?

A standard is a mark of confidence, an assurance that all is well with the product, that it is safe, that it is reliable, that it has been tested to well-established criteria and not found wanting in any respect. In contracts, products and services are specified by **standards**. Distributors, wholesalers, retailers, architects, builders, bankers, insurers, lawyers, testing laboratories, and governments rely heavily on standards to guide them. In the territory where the standard defined the product and specified the material, roofing tiles made of fiberglass were shunned at all points in the supply chain. The market was lost.

Before the **General Agreement on Tariffs and Trade** (GATT)⁷, tariffs were used to protect domestic markets from “foreign” producers. The tariff, for all practical purposes, is now passé. It rears its ugly head now and then, but it is no longer the practice it once was. Most countries in the world, and almost all of the major trading nations, are members of the World Trade Organization; and as such, they’ve signed on to eliminate tariffs. With tariffs no longer creating wholesale unfair advantages and imbalances in the market, the WTO turned its attention to the rising incidences of non-tariff obstacles, or barriers to trade, and negotiated the **Technical Barriers to Trade Agreement** (TBT). The TBT is an agreement among governments; and its basic premise is that standards used in regulation should not be used to create unnecessary barriers to trade.

Despite the agreement, standards are used to create barriers to trade – in regulations and in the marketplace as well. It happens.

This is a good place to discuss the kinds of standards that are more likely to create barriers to trade.

⁶ Henry W. Longfellow

⁷ See Introduction

Barriers to Trade: Continued

Design vs. Performance

This is not difficult, nor is it technical. The two concepts of *design* and *performance* are easily illustrated. If you defined a chair, for example, as a piece of wooden furniture with four legs, an upholstered seat, two armrests, and a high curved back, you would have *characterized* it in terms of its *design*. And – your definition would omit other designs, such as those for metal chairs, plastic chairs, chairs with three legs, chairs without arm rests, etc. etc. When a standard is unduly prescriptive and dependent on design (as the roofing tile standard), it is known as a *design standard*. Prescriptive, restrictive. Designed, as it were, with exclusivity in mind.

On the other hand, if you defined a chair as a piece of furniture that would support a person weighing not over 250 pounds in a sitting position, you would have described the *performance characteristics* of the chair. *Performance*: what it is supposed to do instead of what it is supposed to look like, or what materials are to be used in its manufacture. A lot of room there for manufacturers to be innovative. Non-prescriptive. Inclusive. A *performance standard*.

The Technical Barriers to Trade Agreement and other trade agreements favor *performance standards* over *design standards* for obvious reasons. In all fairness, there are times when a *design standard* is the only solution to a problem. But that is technical, and best discussed with your Engineering Department.

Governments

Governments use standards to regulate health and safety and the environment. They use them in industrial policies to promote and stimulate economies. They use standards to procure. They use standards developed in the private sector (*voluntary*) and standards they develop on their own (*mandatory*). They also use *voluntary standards* in mandatory ways, i.e., in *technical regulations*.

Without standards, laws and agreements would not have applicability; they would be concepts without practical applications, ways without means. The law is what is required, what is expected, and standards are how those expectations are to be met. How could pollutants be held to a level required by the law if there were no way to measure them; that is, if there were no *standard test methods*?

Governments like standards developed by themselves or their own citizens (*national standards*). *National standards* are based not only on a country's needs and approaches to regulation, but also on its culture, its values, traditions, biases, and level of development.

Governments, like businesses, are invested in standardization. Their stake in the standardization of a product or service may be financial (commercial standards save money); it may be a lack of technology (a great deal, if not most technology is developed in the private sector), but whatever it is, it is always *political*. In other words, the standards they use must support *policy*.

As for standards used in trade, the underlying principle is this: *domestic standards are developed to support domestic industries and industrial policies*. If this seems blatantly obvious, there is more to say on the subject.

International Standards

We must back up here. Earlier, we described the basic premise of the WTO Technical Barriers to Trade Agreement this way: Standards will not be used to create unnecessary *barriers to trade*.

There is another part to that agreement; and it is this: Governments will use *international standards* where possible as the basis for technical regulations. In this context, *international standards* are intended to act as deterrents to barriers to trade. The theory is that it is more difficult to create a standard that protects one country's manufacturers when many countries' manufacturers are taking part in its development. That's the theory. Sometimes it works, sometimes it doesn't. The trick to the trade – the goal - is to make your company's standard the *international standard*. Your country, *your* company, your standard.

There is a great deal more to say about *international standards*, but we will leave them for now to go on to another trick of the trade: how your standard gets to be *the* standard, whether the standardization activity is a *national* one or an *international* one.

Consensus

Let's move on to fair competition. The good news is that there is much more of it than the unfair kind. This doesn't mean, however, that there isn't *keen* competition involved in standardization; competition is what gives it its edge.

First, let us not typecast technical experts as scientists quietly engaged in pure, or basic research. Fortunately, these amazing people do exist and mankind is all the better for them. And the results of their work are many times the underpinnings of standards. But a *technical committee* involved in *standards used in trade* is anything but quiet. These people are combatants. They are dedicated, technical geniuses with one thing on *their* minds: their company's way of doing things. These are people with brains and they're focused.

All animals are equal, but some animals are more equal than others.⁸

The scenario: The standards organization is refereeing. Everything is out in the open. Everyone has the same rights. But everyone is not equal. In the struggle to reach *consensus*, there are uneven powers at play. The most potent power is, of course, *substance*. One cannot argue shallowly in a pool of technical talent. The second great power is the *power of persuasion*. Because the process is about *consensus*, that is, agreement with consideration to dissenting opinion, the ability to convince one's peers is paramount. Obviously, this skill exists - even in whiz kids - at varying levels.

This, then, is how one competes in a technical committee: with the same set of skills one would find in a successful trial lawyer. The object is to present a compelling case for your company's point of view, your company's *way of doing things*, and argue that case convincingly before a jury not only of peers, but of competitors. It's not easy. But the reward can be a vast amount of cost savings and profit. Your company doesn't have to change production processes, or materials, or the way it tests its product. You're already there, out in front.

⁸ George Orwell [Eric Blair], *Animal Farm* [1945]

Multinationals

Can a company be in competition with itself? It happens in multinationals when standards activities are not organized and coordinated. Companies that manufacture in more than one country, jointly owned companies, and companies with foreign subsidiaries and affiliates may participate in standards activities in more than one place, in more than one country. In other words, employees in your subsidiaries and affiliates could be acting as *participants* in the *national standards organization of their home countries*, developing national standards for your product. For some companies, this is strategy. If it's not strategy, it's not smart. It means that one part of the company may be working against another. If there is a regulatory reason or a marketing reason for *participating in national standards organizations*, fine (if you can get in - but that's another story - See Chapter Three). But that decision should be made at some focal point in the company. Companies with *standards strategies* run a tightly coordinated standards program. Somebody is in charge, responsible and vigilant.

Back to International Standards

It is better to use one standard many times than many standards one time. This may seem patently obvious; but it isn't necessarily easy to do. Said another way, it is better to test a product using one *standard test method* and sell it in many markets than to have to test it using 10 different test methods in 10 different markets. A frequently heard phrase among companies is "one standard, accepted everywhere." One standard accepted everywhere would be cost effective, efficient, and facilitating. This is the theory behind *international standardization*. But this theory is based on the premise that the entire world, that is, every single country in the world, would accept one standard, or *one way of doing something*. Every government would make it a regulation, every manufacturer would (or could) produce to it, every society would accept it, etc. etc. etc. As preposterous as it sounds, it isn't a total pipedream. There are standards that are *virtually global*, i.e., accepted in enough markets to make exporting simpler, more cost effective, and efficient.

What's in a name? That which we call a rose By any other name would smell as sweet.⁹

What exactly is an *international standard*? There is no one answer to this question. But there are two main schools of thought. The first is that an international standard is a standard that is developed by nations. What this means is that by this definition, a *country*, in the form of an *official delegation*, is the *participant* on the *technical committee*. The other school of thought is that an international standard is a standard that is developed by an *international group of individuals*, (individual interests, or individual companies) who are the *participants* on the *technical committee*.

Here are examples of both kinds: The *ISO 9000* standards on quality management were developed by a consensus of *official national delegations* in a standards organization. The *Internet Standards* were first developed in *consortia* by a consensus of small groups of individuals. The *ASTM International Aviation Fuel Standards* were developed by a consensus of an international group of individuals in a standards organization. All of these standards are used internationally, in many countries, in many ways. They may be used in regulations, in procurement contracts, or as marketing tools.

⁹ Shakespeare, William, *Romeo and Juliet*, II, ii, 43

Let's take a moment to review the hierarchy of standardization:



People feel very passionate about these definitions. But why? Why does it matter? And what does it mean to a company? If the standard makes the product the company wants it to make, if the standard gets the company in compliance with the laws it needs to be in compliance with, and if the standard gets the product accepted by customers, it doesn't matter what anyone is calling it. Or does it?

Standards are like stocks. Both have shareholders, or *stakeholders*. And like stocks, they have value. *International consensus standards*, for instance, have more value to international *stakeholders* than *national consensus standards* because they can be traded, or used, in more than one country.

Back to Governments

How do standards get their value/status? One way to accrue value is in the marketplace. *If the standard makes the product the company wants it to make, and if the standard gets the product accepted by customers, etc., etc., etc.*

The other way standards get their status is by government *imprimatur*, i.e., when governments select them for use in regulation, industrial policies, procurement policies, and trade agreements.

How does a standard get its *imprimatur*? That depends. Most developing countries, for example, do not develop their own standards. Developing country governments use standards that are developed by others. They shop and adopt. Selection is based on any number of factors, not the least of which is the WTO obligation to use international standards wherever possible. Membership in the WTO is important to a developing country. It is the admittance ticket into the world trading system. These countries take the international standards obligation seriously; and so, the standards catalogs most frequently consulted are those labeled "international".

Caveat

But in a developing country, the standard may not quite fit the local circumstances, or it isn't entirely possible to apply *as is*. So it may be **modified**. These changes are called ***national variations***. The base of the international standard may resemble the original, or even be identical to it, but the modifications may require changes in the product or require the product to be tested again.¹⁰

In highly industrialized countries, governments also modify, or create ***national variations on international standards***. Policy goals and WTO obligations are also factors in the selection of standards for government use. In these countries, “ownership”, or standards developed by citizens, may be the most compelling factor in the selection of standards.

End of Caveat

An *imprimatur* is based on each government's criteria and regulatory aims. In many cases, it is a completely subjective decision.

Review

Governments like standards developed by themselves or their own citizens (***national standards***). ***National standards*** are based not only on a country's needs and approaches to regulation, but also on its culture, its values, traditions, biases, and level of development.

Myth: **Trade is regulated by the best, most up-to-date standards**. Nonsense. Trade policies are based on exporting more and importing less. Standards are used to accomplish this goal; and they aren't used to help the competition, even when they're better. Especially when they're better.

End of Review

¹⁰ Repetitive testing is a ***standards-related problem*** that comes with doing business in multiple markets. Testing, certification, and inspections are standards-related activities known as ***conformity assessment***. Conformity assessment is the comparison of a product to a standard or a regulation. Said another way, it is the method by which the manufacturer proves the product ***conforms*** to the standard or regulation. (See the *Hewlett Packard Story on page*).

The Most Important Statement In This Handbook

The best possible scenario for a company is that the international standard is identical to the national standard, is identical to the company standard. This means that its way of doing things is not only the law of the land and domestic commerce, but it is exportable to other markets as well. It means that the company can use the international standard as commercial and political currency in the world trading system.

We digressed from the question, “What is an international standard?” Some people define international standards one way, some another. But in the final analysis, a standard is currency. The definitions, which are intended to confer credibility, are related to the process by which they are developed.

So. What’s in a name? If it’s your standard and it’s working for you in the marketplace...
You do the math.

Chapter Three: Working the System: Standards Developing Organizations (SDOs)

Choosing the right **standards organization** is paramount. You're looking for reputation. Quality. Reasonable cost. You're looking for an organization that will deliver. But most importantly, you're looking for an organization that will do what you have to get done. If you're making café latte, you need an espresso machine. A percolator won't do it.

This is where you and your technical experts can work together. The choice of where and how you are going to invest your time and money is a business decision that will affect far more than the technical aspects of your product. The choice of a **standards organization** has got to be a part of the company's marketing strategy.

What follows are some profiles of standards organizations.

One thing to remember: It's basically about geography.

N.B. Just about every country in the world has a national standards body. The exception is the United States. It will be treated separately, as will the European Union, whose national standards bodies work in concert to create regional standards.

Profile: National Standards Body A

This national standards body is a government agency, staffed by civil servants operating under official mandates. This body may decide unilaterally what standards will be developed, or adopted, and for what purpose. The **national standards bodies** of many developing countries are government agencies; but some developed countries have their standards organizations within the government as well (Japan is an example). The standards organizations of developing countries rely heavily on standards developed elsewhere, but some develop standards on their own. (*See Back to Governments, page 14*)

Profile: National Standards Body B

A non-governmental **national standards body** may adopt the standards of others or develop its own, using technical committees of volunteer experts operating under the rules cited in **The Process** (*See page 4*). Membership is almost always restricted to citizens of the country in question. Non-citizens may be granted access to the **process** if they meet a country's requirements.¹¹ There is only one **national standards body** per country. The government may or may not subsidize the **national standards body**. Financial and/or political independence varies from country to country.

¹¹ Typical requirements are that they manufacture in country, and/or employ citizen workers.

Profile: European Standards Bodies

When a number of European countries¹² formed the European Union, the ***national standards bodies*** of 15 countries also formed a union. In 2004, the European Union was enlarged and now includes 25 countries. Now, instead of twenty-five (plus) national standards bodies developing different standards, there are three ***regional (European) standards developing bodies***¹³ developing one standard for twenty-five (plus) countries.

The general rules for developing ***regional standards*** are the same as for developing ***national standards*** (See page 7). Membership in the two major European standards developing bodies is granted only to designated ***European national standards bodies*** (and *their* members). The third, ETSI¹⁴, develops telecommunications standards and admits non-European members.

Though the most be players, some must be spectators.¹⁵

Access and Influence

It's been done, it is highly unlikely that you will have influence in a ***standards developing process*** if you don't have access to it, that is, if you cannot become a member of the ***standards developing organization. National standards bodies*** - by definition – are driven by indigenous ***stakeholders***. They are not ***open*** to “foreign” interests and influences unless, of course, they support indigenous, or national goals. They are, not, however, the only fish in the sea of standardization.

Profile: The United States

The United States is the exception. There is no ***national standards developing body***¹⁶ in the United States. The United States houses a ***collection*** of standards developing organizations, each one dedicated to a specific ***sector or interest***.

A sector may be public (government) or private (industry). A sector may be product-specific (medical devices, automobiles, telecommunications equipment), category-specific (materials), or function-specific (mechanical, electrical, or electronic). It may relate to a particular hazard (fire safety), or environmental concern (air quality).

The Process (See page 4) will be appropriate to the purpose or the ***application*** of the standard. It may be a government agency with a government process; it may be a company with a company process, it may an industry with an industry process, or it may be a standards organization with a ***consensus*** process.

If you care to, you might take a moment now to flip to Part Three and look at some of the ***standards developing organizations*** listed under The United States.

12 Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom. In 2004, with the accession of 10 new Member States - the Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia - the European Union now numbers 25 countries, plus – for standardization purposes - associated countries in the European Economic Area : Iceland, Liechtenstein, and Norway.

13 CEN, CENELEC, and ETSI. See *Part Three: Standards Organizations*.

14 *Ibid.*

15 Ben Johnson, *Timber; or, Discoveries Made upon Men and Matter [1640]*.

16 Part Three lists the National Institute of Standards and Technology (NIST) and the American National Institute (ANSI) and a brief description of each. Neither is a national standards developing body.

Caveat

The most prominent exception to this sector-specific profile is ASTM International. While it specializes in the development of full consensus standards for materials, its scope is unlimited. Its technical committees develop standards for everything from materials like copper and steel to light sport aircraft, clothing to protect against radiation, nanotechnology, and homeland security.

End of Caveat

The United States Continued: Open to Other Countries

Unlike countries with national standards bodies, a great many standards developing bodies domiciled in the United States, such as ASTM International cited above, admit *participants* from other countries (See Part Three).

The International Standards Developing Organization A

There are governmental and non-governmental standards developing organizations that fit this profile (See Part Three). Members, or *participants*, are official delegates from countries around the world. In the non-governmental organizations of this type, members, or *participants*, are official delegates from *national standards bodies*. Countries with no national standards bodies do not qualify for membership.¹⁷ Technical committees in non-governmental organizations operate under the rules cited under *The Process* (See page 4).

The International Standards Developing Organization B

This is a non-governmental standards organization. Members, or *participants*, are individuals and individual interests from countries around the world. There is no selection process (such as the formation of a delegation) or prerequisite (such as nationality or membership in another body) to qualify one for membership. Companies, government representatives, and consumers are typical *participants*; and technical committees operate under the rules cited under *The Process* (See page 4). This international standards developing organization flourishes in the United States, where there is no national, or “official” standards developing body.

Caution: These profiles are vignettes. The choice of a standards developing organization is an investment that deserves investment-intensive research. There are subtleties, politics and opportunities that accompany each type of organization and each organization. Choose carefully.

¹⁷ The exception is the United States, which is represented by the American National Standards Institute (See Part Three).

Chapter Four: Helpful Hints Or Interesting Topics for Conversations With Your Technical Staff

There is great solace in the simple fact of clarity – about what is vital, and what is not.¹⁸

The Three Rs: Relevance, Redundancy, and Religion

Relevance

A standard should be able to solve a real problem in real time. It should be **relevant** to current events and situations in your company and in the marketplace. When a **standards activity** is sidetracked by an issue that may be technically interesting but not directly related to your product or its success, it's not **relevant**. Your technical team should be *concentrated*, working hard to keep the focus on your company's interests and realities.

Redundancy

Two or more technical committees in two or more standards organizations are working on a standard for your product at the same time. They're approaching it from different angles. Two standards may mean you could be forced to comply with both (if they're going to be applied in the markets where your product is sold). This will, assuming you *can* comply with both, add to your costs. Time to ask some questions.

What are the technical differences in these standards? Who is on each team? What is motivating the **participants**? Where (in which standards developing organization) are they being developed? Why? Which standard is likely to prevail (be **accepted**) in the market in which you are interested? Which standard is taking the path most related to your company's needs and the requirements of your targeted marketplaces? Can you join the **standards activity** of your choice? If not, can you influence it? Can the related activities be pooled? Your technical staff may offer you some very insightful answers to these questions.

Maybe you will have to choose your battle. Maybe you will have to pay the cost. But understand what's going on and strategize, strategize, strategize. More on that later.

¹⁸ Jim Collins, *Good to Great, Why Some Companies Make the Leap...and Others Don't*, HarperBusiness, 2001.

Religion

Beware of religionists. Standards religionists are folks who embrace a one-way-only-way doctrine; i.e., that there is one way and one way only to develop standards. *As if resourcefulness and flexibility in today's global market weren't absolutely necessary.* There are all kinds of reasons for this proselytizing, not the least of which is a well-thought out plan by competitors to enshrine the way (the **process**, the **standards organization**, the kind of standard, etc.) in which they are best positioned to beat your socks off.

All's fair in love and war.¹⁹

Strategize

If you are a corporate executive, you already possess the skills and experience to formulate a standards strategy. Perhaps you will decide to include standardization in your marketing strategy. Perhaps you will recognize the need for a standardization control center, a place where disparate and/or conflicting functions and goals are aligned and coordinated. Perhaps you will institutionalize a communications system between technical functions and other management functions, or create a standards strategy team. Perhaps you will see the need for a new corporate position with company-wide standardization responsibilities. There are a million and one ways to make the company standardization function efficient and effective.

Lobbying

Sometimes a standards strategy will include **lobbying** your own government or a foreign one. For readers who are not familiar with this word, **lobbying** is the term used in the United States for using information and resources to influence the outcome of laws, regulations, practices, or policies. No matter what it is called, it's done everywhere. You may be doing it personally, engaging a professional, or through a trade association.

The term **technical regulation** is a euphemism for **standard**. If it rears its head, and it concerns your product, it's going to affect everything you do and how you do it. If a company spends time and money gaining influence in the **standards development process**, it follows that it should give no less importance to how it is used – or not used – in regulation.

One last thing.

Quality

There is no substitute for quality. A standard is more than technology. It is a statement, a testimony to human achievement. At its best, it is the state of the art, the best that the best can offer. And because it is a living thing, in constant motion, it is progress in the present and the future.

It says everything about your product and your company.

¹⁹ Francis Edward Smedley, *Frank Fairleigh [1850] ch.41*

Part Two

A Corporate Executive's View

Standards –How to Break the Love/Hate Cycle

By Laura Hitchcock
The Boeing Company

Abstract

Standards have historically been subjected to a love/hate cycle within companies. For a time they get a lot of attention by upper management; standards management programs are put in place, the organization in charge of standards grows, and a lot of money is spent on bringing the standards back up to a quality level. Then, after a time, management priorities shift, standards management loses its champions, the standards organization falls prey to overhead cuts, and the standards themselves fall into disrepair. Then, realizing that the standards are not in a state where they can be rapidly deployed for the next project/product, or after incurring large costs due to a lack of standards, the cycle begins again. This chapter discusses a number of factors contributing to this cycle, and strategies that management can use to avoid the costly swings of the love/hate cycle.



When asked about standards, the typical executive can probably tell you that standards contain technical information, that some of their customers communicate requirements to them using standards, that they're important in reducing variability in the design, procurement and production of products, and that their company uses them. However, ask that same executive about the "business" of standards, and you're less likely to get a clear response. Standards are where Quality used to be before Deming, the Baldrige Award, and ISO 9000. Quality was the corporate battle cry a few decades ago. But to get the kind of return on investment that today's shareholders demand, the business of standards needs to be the next big crusade the corporate world undertakes. And it's not a crusade based on the technical content of standards – but rather on the business side of standards. The "business of standards" refers to the policies, processes and procedures a company uses to develop, maintain, distribute and utilize the standards required to support the company's products and services. Companies need to break the love/hate cycle with standards as they did with Quality. By focusing on the key principles of standards and working to make the management of standards as ingrained into the corporate culture as quality, environment and safety, companies can receive an ongoing return from their investment while avoiding the high costs of bringing an out-of-date or inadequate standards system up to date.

Revolution, Evolution and the Business of Standards

Corporate change comes in two forms, Revolution and Evolution. Revolution is a huge upheaval in a corporate culture caused by a major new project (the kind the company bets its life on), or the drastic transformations in the business environment brought about by technical, social or economic changes. Evolution describes the much slower changes that take place during the course of doing business. These are the gradual changes of process improvements, changes in personnel, introduction of information system upgrades, continual training, etc. And these corporate changes map closely to the ascent and decline of standards management -- the amount of attention paid to the business of standards.

Revolution provides a hot, intense standardization drive or a quick violent death to a standards system. During Revolution the corporate standardization system gets a lot of focus as either being part of the solution or part of the problem. Suddenly, there's an urgent need for new or revised standards...and they aren't there. Or worse yet, the infrastructure needed to produce standards is not healthy or robust enough to quickly respond to this standardization need. Now the company is in a build or repair mode to ensure the infrastructure and processes are in place to handle the business of standards. This kind of focus on the standards system is usually the cata-

lyst that begins the “love” upswing on the cycle. There are corporate-level company champions for standards management and rewards for standards activities and for bringing the company standards system into smoothly working order to handle the demands of the Revolution.

In addition to providing the impetus for a fast upswing to the standards cycle, if the standards system is so dysfunctional or so disconnected from the rest of the corporate business processes, a Revolution can result in the total elimination of any standards management system. This usually happens during severe economic or social reorder (such as mergers) Revolutions. No one argues that standards are needed, but the corporate culture has not recognized the strategic value of managing the business of standards. Any centralized or strategic standards management organizations are eliminated, leaving standards maintenance to be handled on an ad hoc, when time permits basis by those in the organization that are not standards professionals. This is a very dangerous situation because standards that are not current or managed properly can leave a company open to liability.

But, sooner or later, standards needs must be met. And if a company doesn't have a responsive standards system, a great deal of time and resources must be expended to repair or put back in place the infrastructure needed to support the business of standards. Like the old adage “Pay me now or pay me later,” the resources needed to bring a standards system back on-line or back in alignment with a company's other business processes can be much more expensive than maintaining a well-functioning standards system. And not having this resource available causes the users to find alternate, less cost-effective solutions.

So what happens between the buildup of a standards system and it's death? While Revolution can often make clear the need for standards or for revisions to a company's standards system in a single fell swoop, during the slower times of change – Evolution – corporate focus shifts away from standards. Gone are the burning corporate initiatives which demanded great change or output from the standards system. The business of standards falls back into maintenance mode. And without the clear business goals of the Revolution, it becomes much harder to nurture, manage and sustain the business of standards. For a number of reasons, which will be discussed below, this is the beginning of the slow decline, or decent into the “hate” part of the cycle. The irony of this is that it's during Evolution that the greatest opportunities for reaping the benefits of standards can be had...but unfortunately, are lost.

There are a number of things a company can do to institutionalize the business of standards during the times of Evolution. And by doing so, a company is better positioned to move quickly during a Revolution, using standards and standardization as a strategic tool. But more importantly, managing the business of standards, just as a company manages the business of Quality, will help avoid the heavy start up and recovery costs to repair or replace a standards system, help prevent costs incurred through incorrect or non-current standards, and allow standards to more readily function as enablers for the other major business processes.

The following factors, when implemented, can allow a company to master the business of standards.

Commitment

As trite as it may sound, the key to any good business process is commitment. For a healthy standards system, the commitment needs to come from the top. Just as a successful Quality system needs upper management to “walk the talk”, so does standardization. One of the major reasons standards systems begin to decline during the slow periods of evolution is that without a strong, public commitment by upper management supporting standardization activities, other issues muscle out standards. Subject matter experts at the grass roots level are diligently doing their best to ensure that the standards contain the best and most current technical information. However, without any clear direction from the top, middle management, besieged with competing forces for

time and resources, are apt to see standards and the standards system as a ready pool of funds and bodies. The number one thing companies can do to help prevent the decline and fall of a standards system is to put in place a corporate policy that supports standards, standardization, and which defines those organizations and individuals responsible for the management of standards and standards processes, giving them not only responsibility but accountability.

Just as companies have policies that address Quality and Safety, leading international companies are beginning to develop Standardization Policies. Spelling out, publicly, a company's commitment to the use of voluntary standards; an order of precedence for when to use international, national, industry, or company standards; and assigning roles and responsibilities for the management of standards is critical to successfully running the business of standards. Without clear policies, the standards system will flounder and there will be a major disconnect between any vision made at the top and the technical work done by employees at the bottom.

Integration

The Quality movement realized early on that to manage quality successfully it had to become a part of the corporate culture. Quality was not something that could be considered after the fact and engineered as an add-on; it had to be considered right from the start during every phase of the design/build/support process. It is the same with standards and standardization.

Unfortunately, standards are rarely a component of management activities. Most of management's focus is on the technology and not on the standards. But it is the standards that capture, codify and communicate the technology; standards that document and communicate the business and technical decisions related to products and processes. And the better able a company is to manage the business of the standards behind the technology, the better able that company is to implement and manage change to that technology. By not managing the business of standards along with all the other business activities, significant potential is lost. Every design team, integrated product team, or cross-process council should have a standardization representative. Standards and standardization should be well-defined tools in every manager's toolbox.

More importantly, there needs to be a link between standardization and corporate strategy. Most company strategic plans or vision statements contain verbiage acknowledging Quality and its role in the company's strategy. Creating a similar tie to standardization is equally important as an extension and enabler for Quality and the other key components of company mission statements such as Production, Cost Reduction, and Customer Satisfaction. Corporate initiatives such as Lean Manufacturing, which is about better quality, lower cost and faster delivery, rely on standards and standardization. To be more effective at Lean, a company must be more effective regarding the business of standards.

The most direct way of integrating standards is to elevate the management of the business of standards up to the same level as the management of quality, safety and environment. Define the organization responsible for standards management and standards strategy and then hold them accountable on a regular basis. Ensure that standards and standardization are measured and reported at the highest level and you will have a powerful tool for supporting the other corporate initiatives. World-class companies have explicit programs to manage quality, product safety and the environment – they must also have a program to manage standards & standards development.

Understanding the Value of the Business of Standards

In many ways the true value of standards is misunderstood. And it is precisely because the true value of standards is not clearly understood, that the standards system is allowed to suffer the slow decline during non-Revolution times. Like any function within a company, it needs to be clear how standards add value. Once the value is understood, institutionalizing the management of standards and standardization becomes a much clearer objective.

The Business Value of Standards I - The Codification of Collaboration

With standards, a great deal of emphasis is placed on the document and the technical data it contains. While it's true that these are important, the true value of standards lies first in the process. Standards represent the *codification of collaboration*. The value is in the agreement; the intent of the organization, company or industry to implement whatever is in the standard. The actual technical details are just that...details. A company or an industry can have hundreds of standards, but until there is agreement on which one to use, there will be little standardization. A strong, robust standards system is one that can facilitate these agreements. A healthy standards infrastructure is one that can bring together all the materially interested parties, whether within a company (such as engineering, manufacturing, procurement, quality) or within an industry, and can coordinate and resolve requirements for a standard. In other words, the standards system that can broker the agreement is the one that will provide the greatest value to the company.

The Business Value of Standards II - The Management of Change

Standards are often accused of hindering progress and innovation, when the true villain is actually a standards system in decline or disrepair. The truth is, standards are effective tools for the management of change. Any primer on the management of quality advocates that first you must document the "As Is". Standards do just that. However, the follow-on steps involve process improvements, which then also need to be captured. And no improvement is complete until its standards are changed. A robust and nimble standards system should allow a company to quickly define, coordinate, and implement a change to a process, part, material, etc. If a company's standards system is maintained in good working order, it's the friend of process improvement and initiatives such as Lean Manufacturing. However, if it has fallen into disrepair and can no longer be responsive, it's the enemy. And it's here that many standards systems earn their negative reputation, thus furthering the decent into the "hate" part of the cycle.

To ensure that a company's standards are "friends" not "foes" for change, a company has to recognize that standards can be used for the management of change. Process improvement procedures and tools need to include standards management. When a company's standards system is dysfunctional, the business of standards is disconnected from all other business. Standards are viewed as a bureaucracy; a necessary piece of technical data that has to be dragged along during the design, build and support of a product. But when viewed as a strategic tool for the management and propagation of change, and maintained as a robust system linked to all major business processes, standards are a powerful corporate weapon in the fight to evolve ahead of the pack.

The Business Value of Standards III – A Common Business Language

Standards provide a common language for business. Standards allow business between different corporate components and allow you to assess and compare performance. Today's business environment consists of mergers and acquisitions, teaming arrangements, and outsourcing. Within the aerospace industry, standards represent the single largest source of technical data used by the engineering workforce. And if this data is not being managed in such a way that it can easily be integrated, migrated, or propagated throughout the changing business landscape, significant time, energy and resources are lost. It's not enough to just have standards, they need to be managed in such a way that when mergers or teaming happens, there is little thrashing over "yours, mine, or theirs" with regards to standards.

Outsourcing and successful supplier chain management depend on standards and a robust standards system. Standards convey requirements and provide the means to assess conformity. But it's the health and strength of a standards system that will determine if standards, and more specifically revisions to standards, can be quickly disseminated down the supplier chain. The business of standards is key to the business of managing the multiple tiers of subcontractors and suppliers.

Standards are the often one of the first casualties of mergers and the last thought of teaming and partnership arrangements. Yet standards are the best hope for success with all these business relationships.

Reassess Metrics for the Business of Standards

Metrics differ between Revolutions and Evolutions. During a Revolution there may be a strong focus on standards activities. Standards are being developed/ revised to support a new product, or the standards system (often including the standards themselves) is being reinvented to address changing technologies or business environments. In all these cases there are clear standards goals in mind. And therefore, the metrics used are very specific. Were the numbers of standards needed to support the new project created? Were they available on time? Was the standards management organization re-aligned with the new business units?

However, during the slower times of change between the Revolutions standards activities tend to lose their clear business focus. Without a crisis situation to respond to, the business of standards resorts to maintenance mode. But more importantly, the metrics fall back to those of traditional overhead functions: facilities, computing head taxes, people costs, etc.

When the metrics used to measure the success of a function have little to do with the value of that function to the enterprise, the relationship begins to sour. You reinforce the down side of the love/hate cycle. If the metrics used to measure the business of standards are those of the overhead function, they are most likely "local" metrics – metrics confined to the particular organization where the standards activity or standards personnel are housed. However, the nature of standards is such that the benefits of standards are seldom realized at the point of origin. The return on the investment during the design phase for the development of a new standard is rarely attributed to or reaped by the organization where the standard was produced. Rather it's Manufacturing, Procurement, Receiving and Inspection, Spares Distribution, Customer Service, Quality or some other organization that benefits from the standardization.

Standards work represents an investment in the future, yet most often they are treated as “expenses of the period.” Companies need to place special emphasis on developing measures associated with the business of standards as it facilitates and supports the other major business streams, rather than falling back on the traditional metrics of cost containment. When a company evolves beyond the fixation with traditional financial measures and begins to measure the less tangible, non-financial things such as quality, lead-time, factory flexibility (those things which drive corporate success over the long term), the key role standards play in achieving these things becomes apparent.

Challenge the organization responsible for the business of standards to come up with metrics that truly reflect the value of standards as outlined above rather than hampering them with only the metrics of overhead. Let them take share in the credit for benefits from standards realized by other organizations such as Procurement, Manufacturing, Quality, etc. Measure how well the business of standards is integrated and supports the other business streams. Finding metrics that reflect the value of the business of standards to the enterprise as a whole can provide the support needed to keep a standards system strong, responsive, and resistant to repeating the love/hate cycle.

Summary

By recognizing the key principles of the business of standards and institutionalizing standards management into the corporate culture, a company can maintain a healthy, robust, and nimble standards system...one that can easily meet the demands of a Revolution and can support the process improvements of Evolution. But most importantly, by breaking the love/hate cycle a company can avoid the high costs of repairing a broken system and the costly penalties incurred when the system is broken. And this approach assures a constant positive return on this important investment. It takes:

- commitment from the top,
- integrating the business of standards with other business streams,
- utilization of standards as a tool for managing change,
- employment of standards as a key means for communication of business requirements internally and through out the supplier chain, and
- a recognition that the business of standards, to be most effective, can not be managed according to “local”, overhead metrics.

With a better understanding of the underlying relationship of standards to business, and how these relationships can fail, a company can avoid the costly pitfalls of the love/hate cycle. But more importantly, when the business of standards is successfully managed, it provides a company with a strong competitive edge in an increasingly challenging business world.

Part Three

Standards Organizations

Author's Note: The lists of standards organizations presented here are not meant to be exhaustive. They are examples.

Profile: National Standards Body A

This national standards body is a government agency, staffed by civil servants operating under official mandates. This body may decide unilaterally what standards will be developed, or adopted, and for what purpose. The *national standards bodies* of many developing countries are government agencies; but some developed countries have their standards organizations within the government as well. The standards organizations of developing countries rely heavily on standards developed elsewhere, but some develop standards on their own.

Table 1. National Standards Bodies A

National Standards Body A	Contact
China (SAC) Standardization Administration of China	www.sac.gov.cn
Egypt (EOS) Egyptian Organization for Standardization and Quality Control	www.eos.org.eg
Philippines (BPS) Philippines Bureau of Product Standards Department of Trade and Industry	www.bps.dti.gov.ph
Saudi Arabia (SASO) Saudi Arabian Standards Organization	www.saso.org.sa
Japan (JISC) Japanese Industrial Standards Committee	www.jisc.go.jp

Profile: National Standards Body B

A non-governmental ***national standards body*** may adopt the standards of others or develop its own, using technical committees of volunteer experts operating under the rules cited in ***The Process*** (See page 4). Membership is almost always restricted to citizens of the country in question. Non-citizens may be granted access to the ***process*** if they meet a country's requirements.²⁰ There is only one ***national standards body*** per country. The government may or may not subsidize the ***national standards body***. Financial and/or political independence varies from country to country.

Table 2. National Standards Bodies B

National Standards Body B	Contact
Germany (DIN) Deutsches Institut für Normung	www.din.de
United Kingdom (BSI) British Standards Institution	www.bsi-global.com
Australia (SAI) Standards Australia International Ltd.	www.afnor.fr
France (AFNOR) Association française de normalisation	www.standards.com.au
New Zealand (SNZ) Standards New Zealand	www.standards.co.nz

²⁰ Typical requirements are that they manufacture in country, and/or employ citizen workers.

Profile: European Standards Bodies

When a number of European countries²¹ formed the European Union, the ***national standards bodies*** of 15 countries also formed a union. In 2004, the European Union was enlarged and now includes 25 countries. Now, instead of twenty-five (plus) national standards bodies developing different standards, there are three ***regional (European) standards developing bodies*** developing one standard for twenty-five (plus) countries.

The general rules for developing ***regional standards*** are the same as for developing ***national standards*** (See page 11). Membership in the two major European standards developing bodies is granted only to designated ***European national standards bodies*** (and *their* members – See Table 2 for examples DIN, BSI, AFNOR). The third, ETSI, develops telecommunications standards and admits non-European members.

Table 3. European Standards Bodies

European Standards Bodies	Contact
CEN European Committee for Standardization	www.cenorm.be
CENELEC European Committee for Electrotechnical Standardization	www.cenelec.org
ETSI European Telecommunications Standards Institute	www.etsi.org

²¹ Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom. In 2004, with the accession of 10 new Member States - the Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia - the European Union now numbers 25 countries, plus the countries in the European Economic Area : Iceland, Liechtenstein, and Norway.

Profile: The United States

The United States is the exception. There is no *national standards developing body*²² in the United States. The United States houses a *collection* of standards developing organizations, each one dedicated to a specific *sector or interest*.

A sector may be public (government) or private (industry). A sector may be product-specific (medical devices, automobiles, telecommunications equipment), category-specific (materials), or function-specific (mechanical, electrical, or electronic). It may relate to a particular hazard (fire safety), or environmental concern (air quality).

The Process (See page 4) will be appropriate to the purpose or the *application* of the standard. It may be a government agency with a government process; it may be a company with a company process, it may an industry with an industry process, or it may be a standards organization with a *consensus* process.

The most prominent exception to this sector-specific profile is the standards developing organization that is the publisher of this book: ASTM International. While it specializes in full consensus standards for materials, its scope is unlimited. Its technical committees develop standards for everything from materials like copper and steel to light sport aircraft, clothing to protect against radiation, and homeland security.

Table 4. U.S. Private Sector Standards Developing Organizations

U.S. Standards Organization	Contact
AIA Aerospace Industries Association	www.aia-aerospace.org
ARI Air-Conditioning & Refrigeration Institute	www.ari.org
*ASME American Society of Mechanical Engineers	www.asme.org
*ASTM International formerly American Society for Testing and Materials	www.astm.org
*IEEE Institute of Electrical & Electronics Engineers	www.standards.ieee.org
*NFPA National Fire Protection Association	www.nfpa.org
NEMA National Electrical Manufacturers Association	www.nema.org
*SAE International Society of Automotive Engineers International	www.sae.org

* International members and standards used internationally

²² The **National Institute of Standards and Technology** (NIST – www.nist.gov) is the U.S. Government Agency with the mission to develop and promote measurement, standards, and technology; and the **American National Institute** (ANSI – www.ansi.org) is a private, non-profit organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system.

Table 5. U.S. Government Agencies²⁴

U.S. Government Agency	Contact
CPSC Consumer Product Safety Commission	www.cpsc.gov
DOT Department of Transportation	www.dot.gov
EPA Environmental Protection Agency	www.epa.gov
FDA Food and Drug Administration	www.fda.gov
NASA National Aeronautics & Space Administration	www.nasa.gov

The International Standards Developing Organization A

There are governmental²⁴ and non-governmental standards developing organizations that fit this profile. Members, or *participants*, are official delegates from countries around the world. In the non-governmental organizations of this type, members, or *participants*, are official delegates from *national standards bodies*. Countries with no national standards bodies do not qualify for membership.²⁵ Technical committees in non-governmental organizations operate under the rules cited under *The Process* (See page 4).

Table 6. International Standards Developing Organizations A

International Standards Organization (Non-governmental)	Contact
ISO International Organization for Standardization	www.iso.gov
IEC International Electrotechnical Commission	www.iec.ch

²³ United States Government Agencies are required by law to use standards developed in the private sector and must explain why they do not when they do not.

²⁴ An example is the **International Telecommunication Union** (ITU – www.itu.int) whose members are governments.

²⁵ The exception is the United States, which is represented by the **American National Standards Institute** (ANSI – www.ansi.org)

The International Standards Developing Organization B

This is a non-governmental standards organization. Members, or *participants*, are individuals and individual interests from countries around the world. There is no selection process (such as the formation of a delegation) or prerequisite (such as nationality or membership in another body) to qualify one for membership. Companies, government representatives, and consumers are typical *participants*; and technical committees operate under the rules cited under *The Process* (See page 4). This international standards developing organization flourishes in the United States, where there is no national, or “official” standards developing body.

Table 7. International Standards Developing Organizations B

International Standards Developing Organization (Non-Governmental)	Contact
ASME American Society of Mechanical Engineers	www.asme.org
ASTM International formerly American Society for Testing and Materials	www.astm.org
IEEE Institute of Electrical & Electronics Engineers	www.standards.ieee.org
NFPA National Fire Protection Association	www.nfpa.org
SAE International Society of Automotive Engineers International	www.sae.org