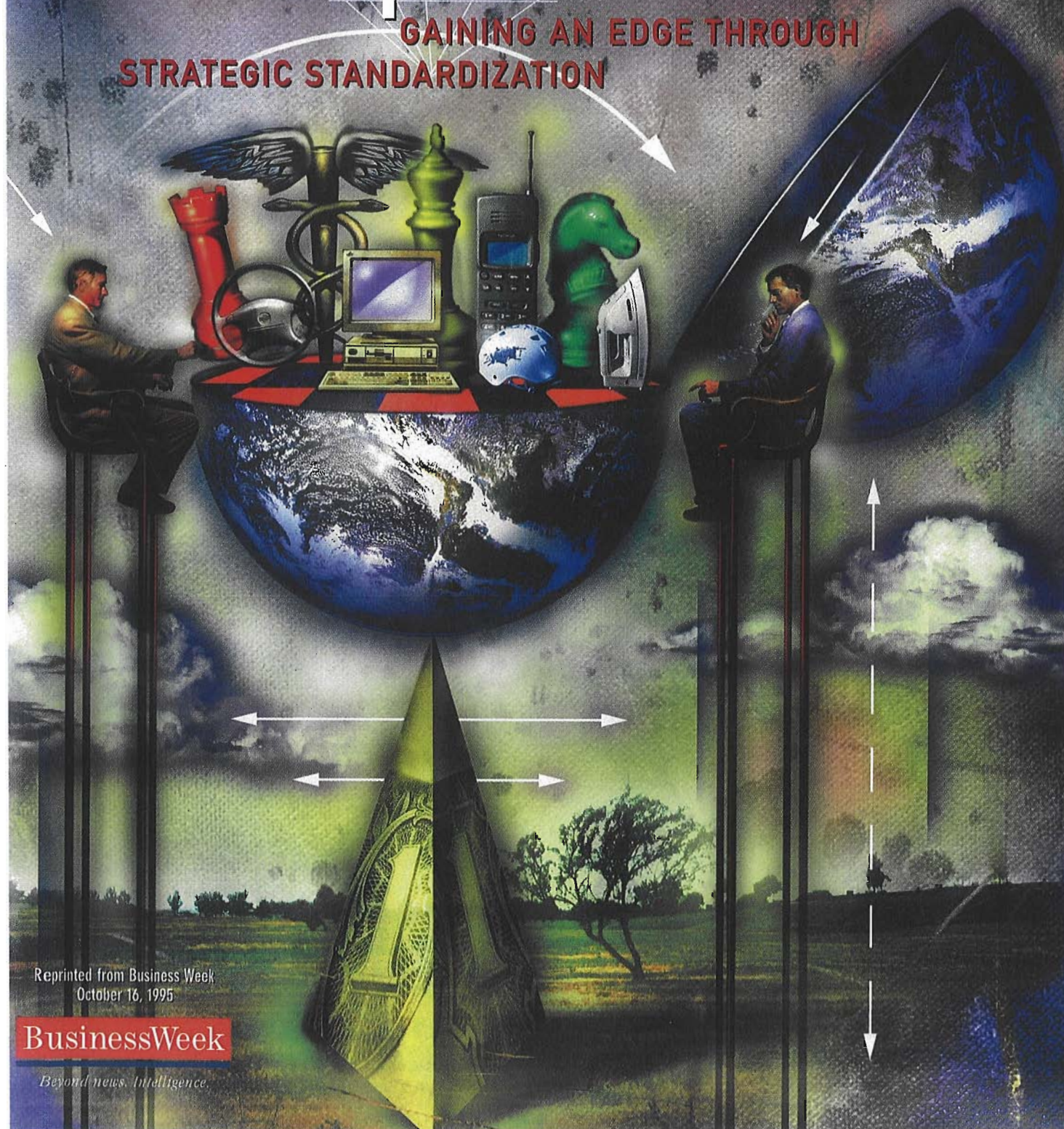


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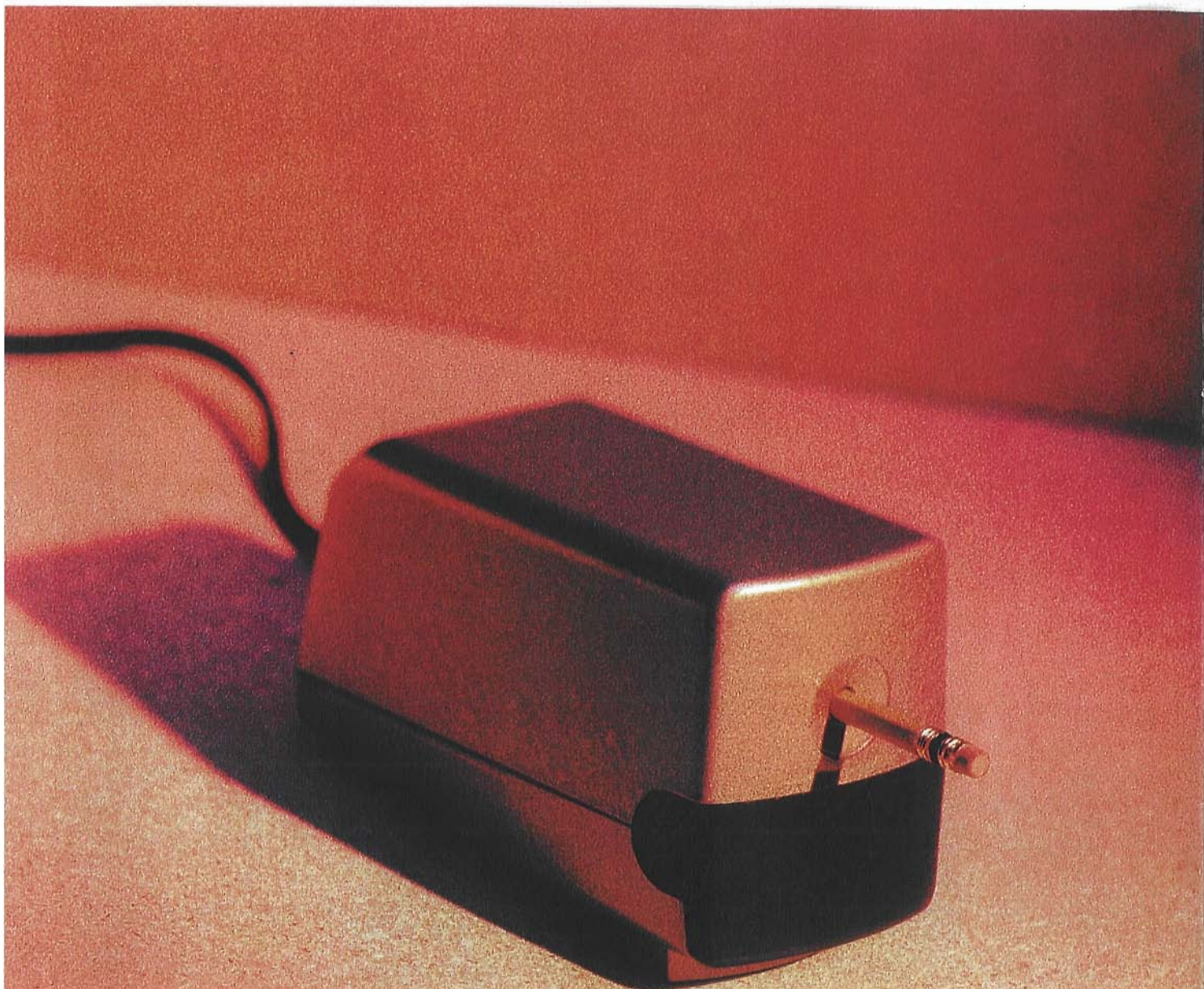
GAINING AN EDGE THROUGH
STRATEGIC STANDARDIZATION



Reprinted from Business Week
October 13, 1995

BusinessWeek

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Competing through Standardization

As global competition intensifies, leading American businesses are increasingly adopting an emerging management discipline as part of their business strategy.

The discipline is called strategic standardization, and the effective management of it can open new markets, increase sales, reduce trade barriers, and ensure a company's competitiveness and profitability. European competitors have used this same discipline to their own advantage for some time, and – to ensure a strong leadership position in the global marketplace – U.S. business leaders need to do the same. Contrary to the view of standardization as only a technical topic, it is in fact a critical business issue with implications for market access, anti-trust, product liability, patent policy and protection, new product development, occupational health and safety, the environment, government acquisition reform, and even our very quality of life. In a period of otherwise shrinking corporate staff, companies as diverse as



Ameritech, Ford, and Polaroid have set up offices of strategic standardization.

Americans' daily lives depend on standards that we take for granted, which – like air – are everywhere, from the products we use, the food we

eat, how we communicate, work, play, travel, and go about our business. This

ubiquitous view, however, belies the real impact of standards and conformity assessment – a procedure to verify that products and processes meet a standard – on our economic well being as a nation, as American businesses,

and as world traders in a global economy. Increasingly, standards have become the lingua franca of international trade, and the underlying basis for competition among the world's regions, nations, and corporations large and small. The strategic value of standards, and the participation of American businesses in their development through the private sector voluntary standards process, is fundamental to the well being of our way of life today and will be well into the 21st century.

Several forces have combined in recent years to accelerate the trend to standards and to put standards issues front and center in the national and

"American companies must understand that standardization is a strategic business issue that has a direct impact on new product development."

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Founded in 1820, the U.S. Pharmacopeia (USP) is an independent, not-for-profit scientific organization that is responsible for establishing legally recognized product quality standards and authoritative information for the use of medicines and other health care technologies. For more than 175 years, USP's standard-setting activities have contributed to improving the quality of drugs and medical products in the United States.

USP publishes the *U.S. Pharmacopeia* and the *National Formulary* which contain product quality standards for 3,200 drug substances and 250 pharmaceutical ingredients used in making drugs. These standards for medicines are recognized as official by the federal Food, Drug, and Cosmetic Act, and are enforced by the Food and Drug Administration (FDA). The initials "USP" or "NF" on a

package label of a drug, dietary supplement, or other article used in medicine indicate that the product

inside purports to meet the approved standards of strength, quality, purity, packaging, and labeling.

In addition, USP develops authoritative, unbiased therapeutic information about drugs and their usage for health care professionals and patients. This *USP DI*® database is available as a text that is designated as a "standard reference" compendium by federal and state statutes for medical reimbursement purposes.



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international agenda. Domestically, those forces include the proliferation of technology in every domain of life, deregulation, the dramatic political shift in the Congress away from government solutions to those of the private sector, ever rising exports by American industry, and a heightened concern over product quality and occupational safety and health issues in the workplace.

Forces on the international front include intense global competition, the rise of regional trading blocks such as the European Union, the accelerated development of underindustrialized regions from Central Europe to Asia to South America, worldwide concern with environmental issues, and the increased pace and impact of international trade and treaty agreements from NAFTA to the World Trade Organization. Combined, these developments have propelled the issue of standards to center stage.

"As we look to the future, standards will become even more important," says George M.C. Fisher, former CEO of Motorola and Chairman of the U.S. Council of Competitiveness, and now CEO of Eastman Kodak. "American companies must understand that standardization is a strategic business issue that has a direct impact on new product development. There is a direct relationship between leadership in standards and leadership in technology. American standards bodies must lead the way in international activities."

Standards Defined

A simple definition of the word standard is a recognized unit of comparison by which the correctness of others

can be determined, a set of characteristics or quantities that describes features of a product, process, or service.

As a consumer, buying products that conform to standards makes it easier to comparison shop – for features, functions, and price. This con-

formance not only sharpens competition, but provides a basis on which true differentiation can occur – in features and functions that are valued by the customer – and not in those areas that the customer doesn't see, appreciate, or that adds no value to the product's use. More businesses need to focus on customer value analysis. Compatibility standards are especially important, and where they exist – such as for stereo equip-

ment interconnection – consumer confidence increases, which translates into increased revenues.

Reform Efforts

Health care reform is one example where the U.S. is poised for significant government regulatory and procurement changes. There is bipartisan and unanimous support in the area of health care administration, including the need to reduce and simplify paperwork. The development of standards related to computer-based patient records is one key component. Another area undergoing dramatic regulatory reform is telecommunications.

Discussions about the global information infrastructure often lose sight of the fact that we already have a national information infrastructure in the broadcast, cable, and phone systems and in a variety of wired and non-wired networks. These link businesses and people in many applica-



**"There is a direct
relationship between
leadership in
standards and leader-
ship in technology.
American standards
bodies must lead the
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The core of the ASTM standard is its high level of technical integrity. The U.S. Department of Defense, the world's largest single purchaser, has adopted over 2,000 ASTM standards for Department of Defense purchase of commercial materials and products. Looking beyond domestic borders, 40% of the ASTM standards distributed go outside the United States.

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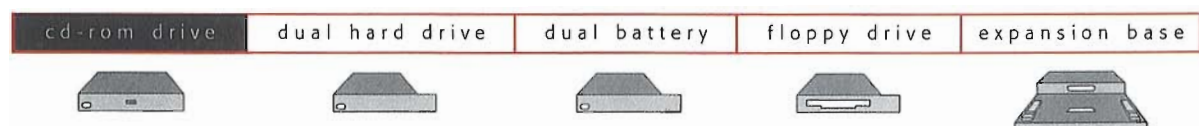
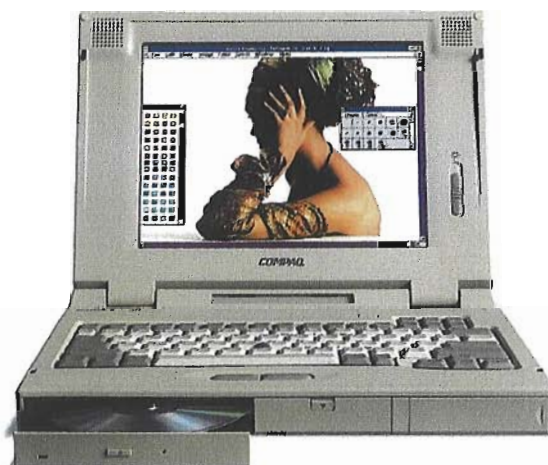
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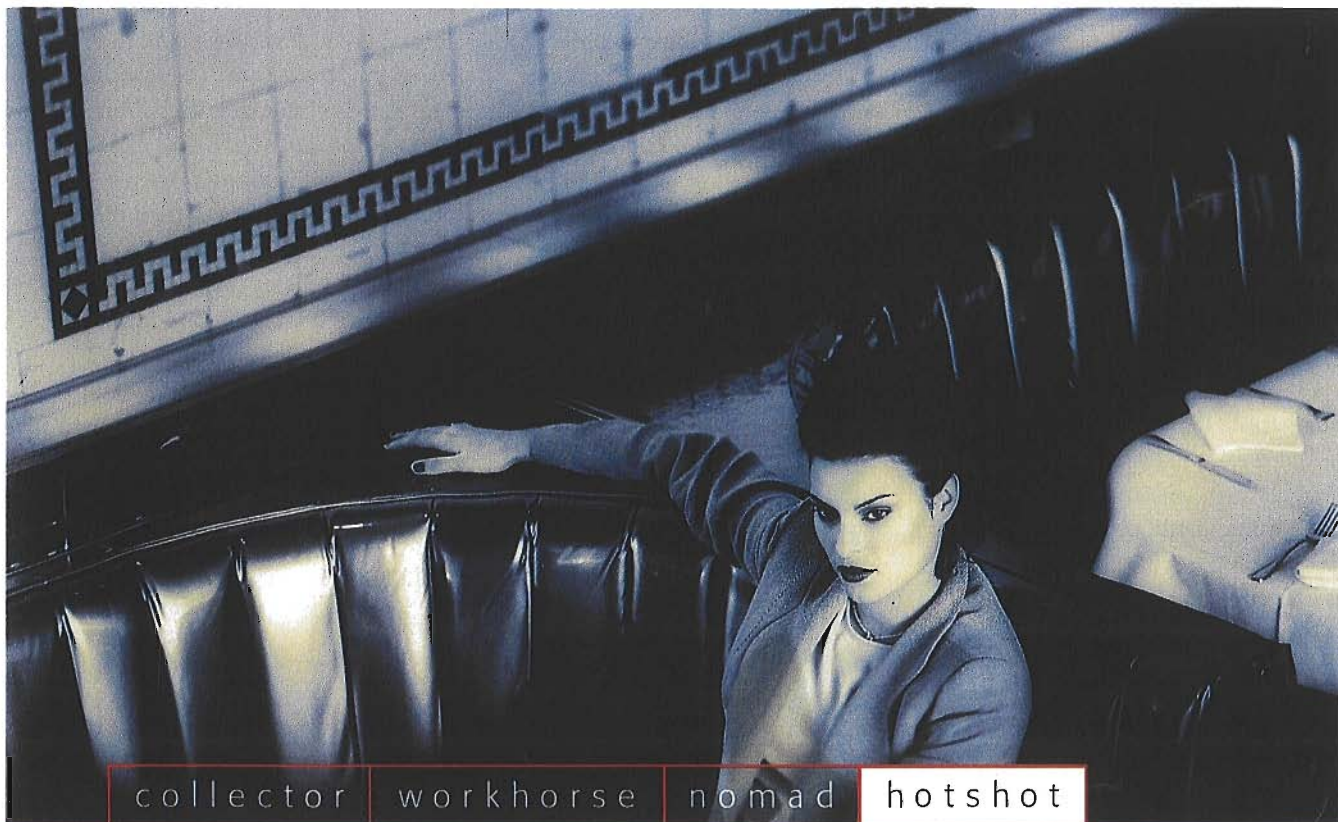
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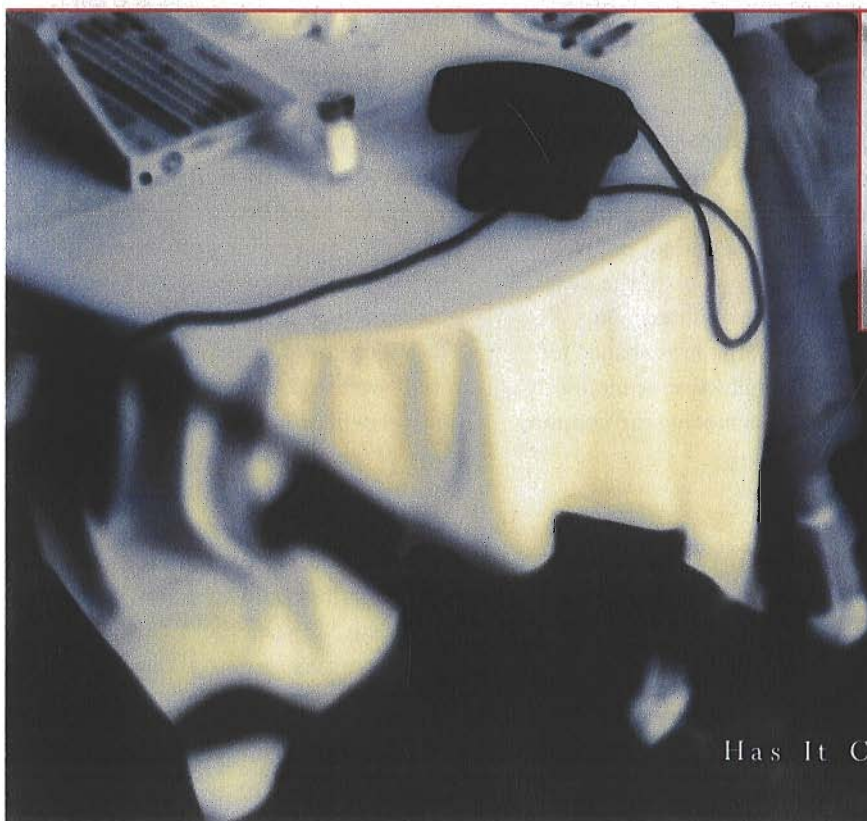
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tions. The issue is the lack of standards that can interconnect these infrastructures and help improve their level of service.

Not surprisingly, the U.S. federal government is the largest creator and user of standards – nearly 52,000 of them. The private sector in America has some 43,000 standards. That's a total of 95,000 standards, which don't include the much larger number of de facto industry standards – such as IBM compatible PCs – that are established not through formal procedures but through widespread acceptance in the free market.

Last year, as part of his acquisition reform efforts, Secretary of Defense William Perry ordered the DoD to look towards the private sector for standards wherever possible. This "dual use" strategy reduces cost, increases the number of supply sources, helps the defense industry convert to commercial market needs, and provides for a more flexible defense industrial capacity.

Says Walter B. Bergmann, II, deputy assistant secretary of defense: "Some analyses project if we adopted private sector standards and specifications we could save between 5 and 10% on weapon costs alone." The economic benefits – cost displacement from the DoD's perspective, and a single market from the suppliers' perspective – will be welcome to taxpayers and businesses alike.

Best Practices

American standards have helped promote best practices for much of this century. One recent example: In 1992 Hurricane Andrew ravaged south Florida and Louisiana, damaging or destroying 18,000 mobile homes.

While building codes provide for wind load standards, those standards did not apply to mobile homes, which posed a major public safety issue. As a result, the American Society of Civil Engineers developed a series of stan-

dards subsequently adopted by the U.S. Department of Housing and Urban Development – which sets the standards for mobile homes – so that mobile homes built and sold after July 1994 must resist winds of up to 100 miles per hour in 26 counties in hurricane-prone sections of five states and Puerto Rico.



It is the competitive role of standards, however, that has sparked the interest of nations and businesses. Standards broaden the potential market for goods and services while at the same time providing a basis on which to differentiate products, through cost, time-to-market, quality, and performance. The cooperative partnership between government, industry, and the consumer – one of the best strengths of our market economy – provide the U.S. the best chance for promoting our collective economic welfare and for achieving the common good worldwide.

World Trade, Government, and the Private Sector

In voting into law the National Competitiveness Act of 1993, the U.S. Congress stated that "strong and effective U.S. leadership and participation in international standards organizations are key to the long-term

competitiveness of U.S. products in global markets," and called on the federal government to "actively participate in treaty standards organizations and assist private-sector U.S. member bodies of non-treaty international standards organizations in both the development and advancement of technical and policy positions."

Last year the U.S. exported approximately \$700 billion worth of goods and services worldwide. Twelve million American jobs are directly related

to exports, and expanding trade is critical to our economy. The three largest regional markets for U.S. exports are Europe, the Pacific Rim, and Latin America. Together these exports annually total \$300 billion, \$200 billion of which is with the European

Health care reform is one example where the U.S. is poised for significant government regulatory and procurement changes.

Union. Standards are fundamental to that trade.

It is no longer sufficient that a product have a large market, be of good quality, and be reasonably priced. Before anything can be traded, it must have market access. It's been estimated that an additional \$20 to \$40 billion could be produced by the U.S. if we could overcome all international technical barriers to trade – many of which exist only for the protection of domestic markets – and which have been proliferating. Most of these barriers result from disparities in standards and conformity assessment between the U.S. and its trading partners.

The intellectual basis for worldwide economic cooperation, open markets, and world trade was laid at Bretton Woods in 1944 – the concepts of the International Monetary Fund and

Opening New Markets Worldwide

Hewlett-Packard Company has grown and prospered in recent years – revenues passed \$25 billion last year – without the benefit of central coordination of the company's standards activities. But that is changing, as HP has seen the huge cost impact of externally imposed standards that in some cases provide little or no customer benefit. Proposed new European eye safety standards for light emitting diodes (LEDs) used in PCs and TV/VCR remote controls, for example,

would have prevented the sale of hundreds of millions of dollars of otherwise safe HP products there. These and similar surprises convinced HP to launch a strategic standards management initiative across the company.

Key to making this happen

The best standards are those that can generate entirely new markets.

was building awareness and sponsorship with senior management, business units, and geographies around the world – no mean feat in a decentralized culture of 98,000 people producing 23,000 products in 120 coun-

tries. A Standards Strategy Committee was formed last year – staffed from the business and geographic units and chaired by a senior standards person

from one of those units – along with a 15 person corporate standards department directly funded by the businesses. They insisted on a contribution to their bottom line. "We have to earn our keep," explains Brian D. Unter, director of corporate external standards. "If we don't deliver value to the HP business units, our department goes away."

HP seeks to gain leverage

and benefit the entire company across product lines. The best standards are those that can generate entirely new markets – such as digital audio tape,



which HP helped develop.

Says chairman, president and CEO Lewis E. Platt, "Our contribution to the development of international standards is critical to our goal of manufacturing and selling products to satisfy customer needs worldwide." HP will continue to participate aggressively in standards activities, which it knows contribute to its impressive bottom line performance.

HOW CAN WE UNLOCK GLOBAL MARKETS?

Infrastructure: Modern roads, bridges, airports, harbors and water systems are essential to worldwide growth.

Designed and built by civil engineers, infrastructure ignites trade, creates jobs and wealth, and improves public health and safety.

U.S. economic interests are deeply affected by global infrastructure growth. Emerging markets in Asia, South America and the former Soviet Bloc desperately seek modern infrastructure to attract trade and investment. Global infrastructure renewal thus provides a huge market for U.S. builders and civil engineers.

Emerging markets also will import more U.S. goods and services as infrastructure increases their prosperity.

The good news is that developing nations are investing \$200 billion annually to develop better infrastructure. But for the U.S., the bad news is that many emerging markets use European Union design and construction standards to build their infrastructure.

Such standards erect formidable technical barriers that shut the U.S. out of burgeoning new infrastructure markets. This contributes heavily to America's steady loss of marketshare in overseas construction. Much is at stake: Civil engineering

design and construction comprise America's second largest manufacturing sector, and employ 10 percent of our labor force.

The American Society of Civil Engineers believes the U.S. and world economies will benefit from unified design and construction standards that squarely satisfy all interests—including those of the U.S.

European construction standards often dominate because European governments, building, engineering and standards communities closely cooperate in funding, research and flexing political muscle. By contrast, the U.S. remains largely fragmented. Our clout in harmonizing standards will grow only when our own private and public sectors pull together.

Civil engineers are helping forge that partnership, because they design and build the world's infrastructure. World prosperity depends heavily on modern infrastructure, but infrastructure can achieve its vast potential only if all nations participate in setting standards.

Founded in 1852, the American Society of Civil Engineers represents more than 116,000 civil engineers worldwide. ASCE is a fully accredited standards-developing organization, and a founding organizational member of the American National Standards Institute.



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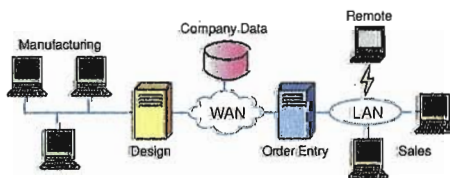
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the World Bank were developed there – but that spirit is largely gone today. During the years of negotiations for the World

Trade Agreement, rampant nationalism and regionalism were obvious. Today we face a more global

market where governments and trading blocks can distort the playing field and – through standards – erect trade barriers that thwart the intent of treaty agreements.

Consider this recent comment by Dr. Hermann Franz, chairman of Siemens' supervisory board: "Europe must set standards worldwide just as it did in the past. We must take care not to allow other countries and regions to set international standards and thereby preempt the markets for themselves. European standardization is a tool for creating competitive advantage... and should come to dominate the contents of international standards."

ANSI – NIST

In the U.S., the American National Standards Institute (ANSI) – a private, nonprofit membership organization – coordinates the U.S. voluntary standards system bringing together the private and public sectors to develop standards for a wide array of U.S. industries. Founded in 1918, the Institute's membership today includes 1,300 corporations, 39 government agencies, and 289 other organizations. It is the official representative to the International Organization for Standardization (ISO), the International Electrotechnical Commission, and other regional standards bodies. ANSI does not develop standards itself, but ensures that consensus, due process, and openness – along with other procedures – are followed by hundreds of standards development



There are only two kinds of organizations: those that have embraced the global standards process, and those that will.

organizations as they establish standards for their respective industries. Many of these are subsequently

adopted as American National Standards, currently 11,500 of them.

Ensuring the integrity of the U.S. voluntary standards system is the most important aspect of the ANSI mission to enhance

U.S. global competitiveness and quality of life. "ANSI's value is as an effective coordinator of American standards policy, the accreditation of standards developers, and as a vital standards information resource," explains Sergio Mazza, ANSI president since 1993 and former president of Memorex U.S.A. "The U.S. voluntary consensus standards community represented by ANSI comprises a unique American system: diverse membership, an open and published process, opportunities for public

Global Advantage & Positioning

With \$128.4 billion in revenues and nearly 340,000 employees in 34 countries, few businesses can equal the reach of Ford Motor Company, the world's biggest producer of trucks and the second largest producer of cars and trucks combined. Early this year, Ford U.S. and Ford Europe became Ford Automotive Operations with single, centralized departments and processes. The need to grow drove the decision to transform. More than 80% of the world's population live outside Ford's traditional markets. Ford believes global standards are key to reaching those potential customers.

With one billion people, China represents a vast potential auto market. But what are the customary standards, even those as basic as

human body sizes and proportions? What is the voice of the customer in a formerly command economy? Highway infrastructure, fuel quality and availability, and many other factors – taken for granted in the West – have yet to be fully determined.

Ford is committed to using standards to eliminate

non-value added differences in its products, and to differentiate itself from the competition. It seeks to eliminate costly redundancy and recertification often required by governments, seeking one standard, one conformance test, one accreditation, and one recognition.

By standardizing on less than 20 of some 130

possible coatings on thousands of bolt types, Ford is saving millions of dollars. But it didn't stop there. It developed a now-patented bolt that can't be cross-threaded when inserted by machines – a new performance standard for Ford – eliminating other bolts

Ford is committed to using standards to eliminate non-value added differences in its products.

and dramatically increasing quality and productivity. "Standards development at Ford has become a competitive venture, fast paced, intellectually demanding, results oriented, and global," explains Keith Termaat, strategic standardization manager. "Setting high standards is an essential principle – high standards for ourselves, for our company, and for our customers."





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input, due process and a cooperative working relationship with federal, state, and local regulating bodies," adds the Hon. Robert S. Walker (R-PA), Chairman of the Committee on Science in the U.S. House of Representatives. "It is a perfect testament to the genius of our economic and political systems. Its success is mirrored in the high level of acceptance and credibility that voluntary standards have been accorded in our courts, in the international arena, and in certain agencies of government."

Within the federal government, the primary responsibility for coordinating the technological basis for standards that help accomplish this rests with the National Institute of Standards and Technology (NIST) – an agency of the Commerce Department – which promotes economic growth by working with industry to apply technology,



**As a consumer,
buying products that
conform to standards
makes it easier to comparison shop.**

measurement, and standards through a focus on the nation's technology infrastructure. The inherent value of infrastructure and measurement is that it is freely and equally available to all. We take it for granted that when we pump a gallon of gas at the gas station, we get a real gallon, and that remains true anywhere in the country. The measurement system for this traces back to NIST.

NIST works with industry and the rest of the U.S. sector to facilitate the private voluntary standards process. An important step in reinforcing such partnerships occurred in July of this year, when NIST signed a memorandum of understanding with ANSI to enhance and strengthen the national voluntary standards system. "Both NIST and ANSI agree on the need for a national approach to develop the best possible international standards to strengthen U.S. competitiveness," explains Dr. Arati Prabhakar, NIST director. Both organizations saw the need for a national strategy – not just a federal one – at the international standards negotiating table, as well as the need for an appropriate balance between the voluntary, open, consensus-based standards setting process and government regulation, especially in health and safety areas. In fact, NIST supports the federal government's continuing movement away from regulations to reliance on voluntary standards. The intent of the NIST-ANSI agreement is to serve as an anchor for the whole voluntary standards system, to better coordinate that system with the work of the federal government, and to boost the voice of the U.S. private standards system in international negotiations, helping to maximize the benefit back to the U.S.

Advocacy, Innovation & Performance

AMP Inc. is the world leader in electrical/electronic connection devices, found in everything from automobiles to computers to washing machines. More than half of AMP's more than \$5 billion in revenue is derived

AMP

from products that conform to industry standards. But don't equate standards with a lack of product innovation: In patents received, AMP is among the top 25 U.S. corporations. Standards are a market-driven phenomenon that precede many innovative products that they describe – sometimes creating new markets in the process – and become the baseline upon which real value differentiation can occur.

Few companies have been as articulate or as vocal as AMP in contributing to the national dialogue on the value of

standards in competing globally as a nation, whether it be testifying before Congress or advising the U.S. Trade Representative. Educating U.S. business executives on the importance of standards in world trade – and encouraging

them to be advocates for American interests in the international arena – may be even more important. Says

William J. Hudson, President and CEO:

"Companies taking an aggressive approach to standards can derive a critical competitive advantage in shorter time-to-market and a higher 'hit' ratio, while those that adopt a defensive posture of simply creating products that conform to existing standards risk falling behind

on the learning curve."

AMP's internal standards training program is recognized as a "best practice" model, and served as a basis for ANSI's own national education and training program. Education begins and ends from the customers' perspective. It is not by accident that AMP's Global Products Standards department reports to the corporate vice president of Global

Standards are a market-driven phenomenon that precede many innovative products.

Marketing. Adds Henry Line, who heads the department: "Standards are not an end in themselves. They must be part of the company's global market strategy and the new product development efforts demanded by our customers' requirements."

U.S. Product Data Association Makes It Happen

Future U.S. industrial competitiveness depends on the development and application of new information technology standards that are being required by the international marketplace.

The International Standard for the Exchange of Product Model Data (STEP), currently under development, is the most compre-

hensive information technology standard

US PRO

developed to date for 21st century manufacturing. Today, the U.S. Product Data Association (US PRO) leads the development of this standard in both the national and international arenas.

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When it comes to STEP, industries worldwide can make it happen, watch it happen, or wonder what happened. U.S. industry, through US PRO, is making it happen.

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Conformance and Quality

Traders in the world market must be prepared to satisfy two conditions to enter global competition: assurance that the products or services conform to the standards of the receiving market, and proof of a quality management system for products, services, and operations. U.S. standards systems must be recognized by our trading partners in NAFTA, the European Union, the Market of the Americas, and the Asia-Pacific Economic Cooperation if we are to achieve the goal of "one product, tested once, sold worldwide." The U.S. does not want to be on the receiving end of a surprise again – as it was with ISO 9000 – where European forces drove the agenda.

As a matter of national policy, we want to eliminate what U.S. Trade Representative Mickey Kantor calls "sanctuary economies." Says Kantor: "We will insist that the United States have the same access to foreign markets as foreign countries have to our markets. We can't engage in a level playing field, equal trade, open up markets and get rid of trade barriers unless we harmonize standards." Motorola's president and CEO Gary Tooker states: "To a large degree, the

success of voluntary industry standards will determine whether American products and services can survive in the intense competition of the global marketplace." Agrees Prabhakar: "The strategic value of standards to the national economy is beyond doubt, and the pace of development of international standards is accelerating. What isn't clear is whether we, or someone else, will get the economic advantage. Active participation by American business in the standards process in a strategic sense is critical to ensuring that we secure that advantage."



"Active participation by American business in the standards process in a strategic sense is critical to ensuring that we secure [the] advantage."

U.S. Voluntary Standards and Conformity Assessment

Voluntary standards – open standards developed by consensus and due process in the private sector – provide an essential framework (some would argue they should provide only a minimal framework), leaving the maximum possible room for innovation by which companies can add value, differentiate themselves, and compete. Standards enable innovation, remove barriers, and facilitate the flow of information, products, and services between customers and suppliers.

While there is no single international or national process for developing standards, those that arise from a formal, coordinated, consensus-based and open process by interested parties – commonly called voluntary consensus standards – are at the heart of the U.S. system. De facto or marketplace standards do not always ensure a level playing field. Proprietary solutions to market needs often do not lead to an optimal economic benefit for the overall

economy. Because standardization requires gathering data and making compro-

mises among the needs of diverse stakeholders, cooperation by all parties is required. When this due process is followed, the standards that result provide economic benefit – including compatibility and economy of scale – to the many, rather than the few.

Standards Developers

In the U.S., there are more than 400 private standards developers. Standards development organizations (SDOs) are the core of the decentralized voluntary standards development process in the U.S. Most of those that



operate by open consensus and due process in their respective subject-matter domains are accredited by the American National Standards Institute (ANSI).

One of the largest standards development organizations is ASTM, the American Society for Testing and Materials, with nearly 10,000 standards recognized and used the world over. These cover fields from metals, medical services, and building construction to environmental management, plastics, and petroleum. Another, well recognized SDO is Underwriters Laboratories (UL), which provides product safety certification programs to determine that products meet nationally recognized safety standards. Others include the Society of Automotive Engineers (SAE) – whose best known standards include motor oil viscosity ratings SAE 10W-30 and 10W-40 – and the National Fire Protection Association (NFPA) – whose performance standards for sprinkler systems are used worldwide.

Conformity Assessment

Conformity assessment is the term used to describe steps taken by both manufacturers and independent third parties to assess conformance to standards. A manufacturer's declaration of conformity is one method of achieving this. This is favored by many larger companies with sophisticated and well-established internal testing and

quality assurance systems and for whom an independent third party review seems unnecessary and expensive at best. The other approach is a third party assessment based on a

**Standards
enable innovation,
remove barriers,
and facilitate the
flow of information,
products, and
services between
customers and
suppliers.**

determination that a product conforms to a particular standard. This assessment often functions as a seal of approval that can increase buyers' confidence that the product actually conforms to a claimed standard. Third party assessment can take the form of

product testing (by an independent laboratory), certification (against some standard), or registration (e.g., ISO 9000 by a quality systems registrar).

Third party conformity assessment has been growing in the U.S. It is estimated that there are some 5,500 independent, for-profit testing laboratories alone, double the amount from ten years ago. Certification is a form of third party conformity assessment – usually a certification mark – that stipulates a product performs to specified requirements. Underwriters Laboratories (UL) and the American Dental Association are good examples of certifiers, on electrical devices and toothpaste respectively. For many consumers, these "listings" and marks provide reassurance that the product they are buying is either healthy, safe, or both, and conforms to the accepted standard.

The biggest growth in the conformance business has come with the rapid proliferation of registration for quality management systems, which has for some time been promoted by the European Union. The International Organization for Standardization (ISO) 9000 quality system standards are perhaps the best known. In



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the eight years since its introduction, the number of ISO 9000 registered U.S. firms has grown to 3,500. The cost of such registration – which begins with the initial registration and continues with a periodic follow-up audit – is high. The standards require manufacturers to document their production processes and develop means to improve them – but they are no guarantee of quality products. Rather, the focus is on the process of delivering a product of consistent quality – whatever that quality is.

The real problem with quality system registration is its spiraling cost and redundancy. This places a serious burden on U.S. suppliers, who are increasingly required by either the government or other manufacturers or both to have their quality systems registered by third parties. Because multi-national mutual recognition

agreements are not yet in place, there are costly, duplicative, and multiple registrations. ANSI is leading U.S. negotiations on both a bi-lateral and

multi-lateral basis to achieve a one-time registration that will be accepted on



The integrity of the U.S. voluntary standards system is the most important aspect of the ANSI mission.

a global basis.

Companies who successfully propose their technology as the basis for an industry-accepted standard avoid being relegated to an otherwise proprietary and smaller niche market, are ahead on the competitive learning curve for that technology, and may also benefit from royalties from other users. Says ANSI's Mazza: "The message to American industry is to get involved. When you're not at the table, you can't participate effectively, and you'll have little or no chance at proposing your own technology as the basis of a national or international standard. It costs relatively little to contribute to the voluntary standards process, and the rewards can be enormous."

Industry Leadership & Time to Market

With \$64 billion in revenues and 219,000 employees worldwide, IBM markets thousands of products from semi-conductors to software to mainframe computers in more than 159 countries. "IBM's customers are demanding open, interoperable systems, and the way to achieve that is through standards," according to Lawrence L. Wills, IBM's director of standards. Defining what standards are of interest to the company and being involved in external standards activities is the responsibility of the divisions and geographies, who at any given time collectively field 400 to 800 individuals (part-time).

The cost is insignificant as compared to the benefits. "If you're not at the table participating, you

don't have a voice in what's happening," says Wills – who is also Chairman of ANSI – "and you are in effect letting your competition define what your products are going to look like in the future."

Active participation in standards activities permits IBM to get its own technologies into the process, better understand where the standards are going, and help facilitate speed to market. An international standard permits IBM to build one product and market it worldwide. Standards and how they

IBM

are used in products are an integral, increasingly formalized part of the company's general management and strategic planning process.

In an information

technology (IT) industry where historical 4 to 6 year product life cycles have been reduced in some instances to 12 to 18 months, IBM's challenge is to ensure a more responsive process and compress the time it takes to get standards approved. International IT standards are being

"If you're not at the table participating, you don't have a voice in what's happening."

developed in less than 30 months and approaching 24 months but are still not aligned with the fast product cycles that are the hallmark of today's IT industry. IBM's participation in standards bodies helps ensure that the development and approval procedures put in place are necessary and value-added to both industry and itself.

Environmental Management

Another major standards development effort with profound consequences for industry worldwide are the proposed ISO 14000 Environmental Management Systems standards. In 1991, the U.N. asked the ISO to develop a management process to help safeguard the environment and to enact global standards for environmental management systems and evaluations tools, from auditing to labeling to life cycle assessment.

The business case was simple: a growing worldwide desire by nations and people for better risk management and improvement in how we manage the environment. A truly

What Do the Best Companies Say?

They say "we have the best project managers." According to research published in the *Harvard Business Review*, the best companies consistently attribute their success to their project managers. To project managers who know how to manage conflict and how to stay close to the customer. To project managers who get better products to more markets faster. Maybe that's why a leading business publication recently labeled Project Management Career #1.

What Is a Project? A project is a temporary endeavor undertaken to create a unique product or service. Examples of projects include: developing a new product or service, developing a new information system, constructing a building, and implementing a new business process. Projects are undertaken at all levels of the organization and can involve a single person or many thousands. The project manager applies knowledge, skills, tools and techniques in order to meet or exceed stakeholders needs and expectations.

How Can Your Organization Improve Project Performance? One way is to adopt the standards defined by the Project Management Institute (PMI) in its publication *A Guide to the Project Management Body of Knowledge (PMBOK)*.

"Our senior management views project management as an essential element in our drive toward technical excellence. Our aerospace sector has adopted the PMBOK Guide as a standard framework for project management."

Chuck Schmidt, Allied Signal, Director, Center for Process Improvement

The *PMBOK Guide* provides a basic reference for anyone interested in the profession of project management. It is also used by PMI to provide a consistent structure for its professional development programs:

Certification of Project Management Professionals (PMPs) and accreditation of degree-granting educational programs in project management.

TASC, Inc., a company in the information technology business and a strong advocate of project management standards, states its investments in project management infrastructure, processes, and professional certification training, all pay dividends.

What are Project Management Standards? The *Project Management Body of Knowledge (PMBOK)* is an inclusive term that describes the sum of knowledge within the profession. As with other professions such as law, medicine, and accounting, the body of knowledge rests with the practitioners and academics who apply and advance it.

The *PMBOK* includes knowledge of proven, traditional practices which are widely applied as well as knowledge of innovative and advanced ones which have seen more limited use.

"Project management standards give our employees the knowledge base to build upon and be prepared for the dynamic business environment of the future."

R.L. Eastman, AT&T, Director Government Programs

PMI's *PMBOK Guide* identifies and describes that subset of the *PMBOK* which is *generally accepted*. Generally accepted means that the knowledge and practices described are applicable to most projects most of the time, and that there is widespread consensus about their value and usefulness.

Generally accepted does *not* mean that these practices are, or should be, applied uniformly on all projects; the project management team is always responsible for determining what is appropriate for any given project.

Organizations Using Project Management to Achieve Corporate Objectives A highly competitive global marketplace demands that businesses get new projects and business development completed quickly, on-time and within budget. William R. Duncan, PMP, a partner at Duncan-Nevison in Lexington, MA and PMI's Director of Standards, notes that Camp Dresser & McKee Inc. (CDM) has developed its project management process using the *PMBOK Guide*. CDM uses this process to accelerate the schedule and reduce the budget on its environmental engineering projects without compromising its strict quality standards.

From high-tech to insurance, Fortune 1000 to small business, project management is fueling much of the successful development of exciting new business enterprises.

"A repeatable project management process provides consistent and effective control of projects enabling us to better meet our customer requirements for information technology services."

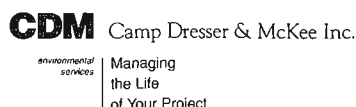
Tom Block, EDS Project Management Consulting

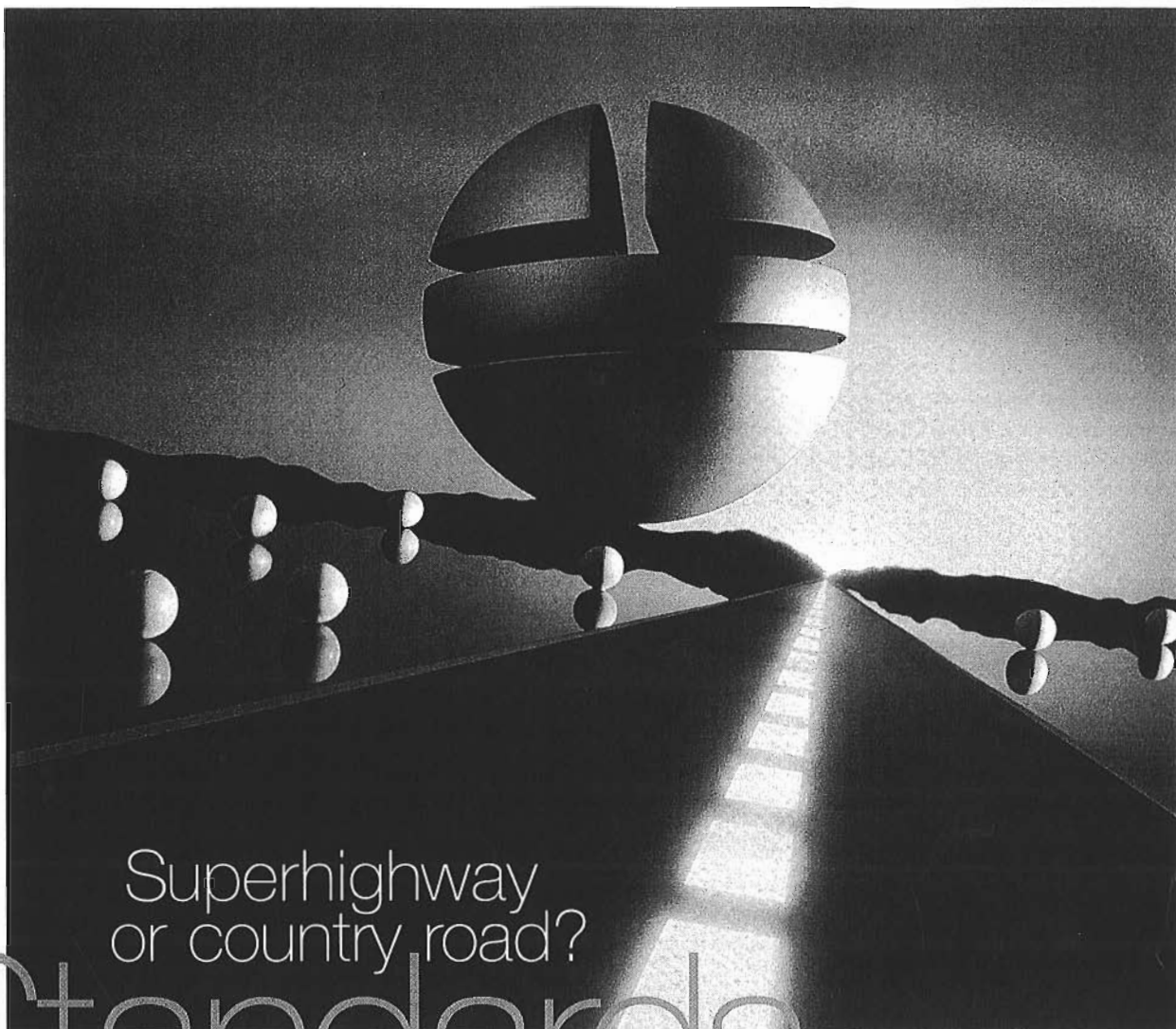
What Does the Future Hold? Project management leadership has become a highly sought-after skill applicable at every level of an organization. The standards setting activities of volunteers from the profession are making it possible for organizations to prepare for the higher demands of the future.

PMI, a non-profit professional association located in Upper Darby, Pennsylvania, represents members worldwide who are actively advancing the project management profession.

For more information, contact PMI:
130 South State Road, Upper Darby, PA 19082. Tel: (610) 734-3330
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This feature made possible through the generous contributions of these leading edge organizations who employ and advocate project management principles and standards:





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international effort, such as this, would also preempt potentially conflicting and even more costly national or regional regulations and standards, which were already beginning to emerge.

Since 1993 the ISO 14000 technical committee, and dozens of subcommittees and their working groups, have met hundreds of times to discuss and develop a framework to address environmental issues. The U.S., which has 400 people involved, is represented by ANSI. Unlike the development of ISO 9000 – when much of American industry was asleep at the switch – America has been actively involved at the table from day one. Says Joe Cascio, who chairs the U.S. Technical Advisory Group for ISO 14000 and is IBM's program director for environmental health and safety standardization: "Had U.S. industry not been so proactive this time around, we might not have precluded the desire on the part of some Europeans from

implementing a performance, vs. a process standard, which would have effectively instituted European regulations – and technologies – for specific levels of emissions and pollution that could have been in conflict with our own national interests. In essence, it would have created an effective trade barrier."

Like ISO 9000, ISO 14000 is a series of process management standards, not performance or quality standards. Neither are concerned with product quality itself – which is the concern of the manufacturer and its customers – but rather with the consistency of quality. ISO 9000 certification, for example, is a guarantee that manufacturers are consistent in the process that they follow. This means

written process procedures, consistently executed, that are both communicated to and understood by employees and customers alike.

Many in American industry – if they are aware of ISO 14000 at all – are concerned about its costs. These include not just the cost of initial compliance and registration, but the ongoing costs of maintaining that certification (or registration by a third party).

If the experience of ISO 9000 is any indicator, ISO 14000 will indeed be very expensive, though many experts calculate the cost at only half of the expense of ISO 9000 registration. For large companies, that translates into anywhere from \$100,000 to \$1 million per plant.

Consider, however, the alternative: trade-restrictive and regionally-unique performance standards vs. prescriptive standards and fragmented, uneven compliance and enforcement mechanisms that –

besides being a management headache of the first order – could triple the cost of implementation. When seen against the backdrop of ISO 9000 – when U.S. industry was largely absent from the table, the ISO 14000 process has worked comparatively well for us.

Smart companies will get involved to ensure that this remains the case, and will anticipate the impact of and prepare themselves for these environmental management standards. The Environmental Protection Agency sees ISO 14000 as a vehicle for joint industry-government efforts in finding effective voluntary approaches in achieving compliance. The most innovative among us will also find creative ways to use ISO 14000 compliance to



Companies who successfully propose their technology as the basis for an industry-accepted standard...are ahead on the competitive learning curve for that technology.

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We do more than write standards however. We offer credentialing for the professionals who work with measurement and control. We provide training from basics to advanced; forums for

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demonstrate to customers that – when it comes to the environment and safety – they are well managed and good corporate citizens. As we approach the end of the millennium, businesses will find that being “green” is just good business.

Strategic Standardization and Enlightened Self Interest

One of the most successful American exports has been software, and Japan has been a crown jewel for us in that regard – \$2.7 billion in 1994 alone. Until last month, there was widespread concern that Japan's Ministry of International Trade and Industry (MITI) would require that foreign-made software be certified by the unique standards of the Japan Accreditation Board (JAB). Because they alone can perform the conformity assessment tests and certify that products meet their standard, the reasoning went, the Japanese are in a position to gain access to our software expertise.

Fortunately, this concern has been allayed. The U.S. – led by the private and public representatives of ANSI – has successfully concluded an agreement on the role of international standards and established a common set of principles and procedures to guide the development of conformity assessment approaches for software sales in Japan.

In wireless digital communications, the Europeans pulled ahead with their Groupe Speciale Mobile (GSM) standard. Until recently, U.S. cellular companies were still quibbling over competing digital standards. While not the only reason Europe is ahead – they don't have the drag of the huge U.S.

analog infrastructure – with the geometric growth curve of digital cellular customers in Europe (a 10 to 1 ratio over the U.S.), the GSM standard has dominated the wireless world. Because U.S. industry could not develop a consensus position, European providers were poised for a windfall. Now, however, U.S. manufacturers are playing a leading role in the next level of frequency bands which will help gain a stronger global position for U.S. products.

Examples such as these underscore



**The focus is
on the process
of delivering
a product
of consistent
quality.**

the importance that standards can play as technical barriers to trade – by no means unique to Japan and Europe – and serve as a clarion call that the price of free and open world markets requires more than government-negotiated trade agreements. For American business, it requires the commitment and active participation in the U.S. voluntary standards system – the best in the world – business helping business out of enlightened self interest.

The most enlightened corporations have established strategic standardization programs to ensure that a standards policy is an integral part of their corporate and business strategy, and not just among large corporations. “As a medium-size company, we simply had to get involved in the process of trying to influence the writing of standards, and of understanding what the issues really are,” explains J. Hans Kluge, chairman of Automatic Switch Co. “If you are not involved in standards or standards-setting, you will be

left outside and the competition will run away with your business." William J. O'Neill, executive vice president and chief financial officer of Polaroid states: "Strategic standardization is a fundamental dimension of our corporate strategy without which we could not grow our global market share." We might add that in the wealth of nations today, there are only two kinds of organizations: those who have embraced the global standards

process, and those that will.

Written by Robert L. Howie, Jr., vice president of International Systems Services Corporation (ISS), which partners with clients worldwide to deliver business results through change mobilization and information technology. 1.800.DIAL ISS or rhowie@800.dialiss.com



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Defining Product & Service Delivery

Ameritech keeps 13 million customers in touch through telephone, cellular, paging, data, video, and information networks. Some 63,000 employees of this Baby Bell helped generate \$12.6 billion in revenues last year.

Ameritech chartered senior, cross-functional leadership teams to study four mission

areas critical to corporate growth in a rapidly changing technological environment with increased customer expectations. One of those teams examined standardization to better understand the fundamental connection between standards and new product development and service delivery. Their findings: to adopt strategic standardization as a key business policy.

Ameritech wants to reduce customers' uncertainty that a new product or service will interoperate with their existing ones and be compatible with their lifestyle. In voice messaging, business, wireless, and residential customers each employ dif-

Determining early the right standards to use can accelerate the adoption of new products.

ferent codes to perform the same function. A set of common codes would reduce confusion. Determining early the right standards to use can accelerate the adoption of new products sooner. The lack until recently of a commonly accepted signaling standard for screen phones, for example, delayed their successful introduction. Once a standard was agreed upon – the Analog Dis-

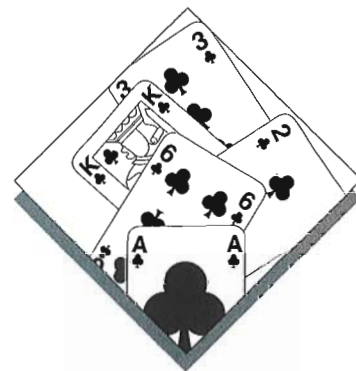
play Services Interface (ADSI) – manufacturers could be assured enough market volume to produce screen phones that could retail for under \$200.00 – a condition for widespread consumer acceptance.

Explains Michael G. Gorman, who oversees standards for the company, "We've moved from viewing standards as a technical concern to seeing them as a basic customer and marketing issue. If we can involve end users in standards development – in the process making the standards more accepted by manufacturers – we can increase American competitive advantage." Ameritech –

Ameritech

through its active participation in national standards development policy – is seeking to do just that.

ARE YOUR COMPETITORS STACKING THE DECK?



If you are not treating standards as a management tool, you may be giving your competition the opportunity to set the rules at your expense. By not participating in the U.S. voluntary standards system, you allow competitors to influence business issues and gain an edge.

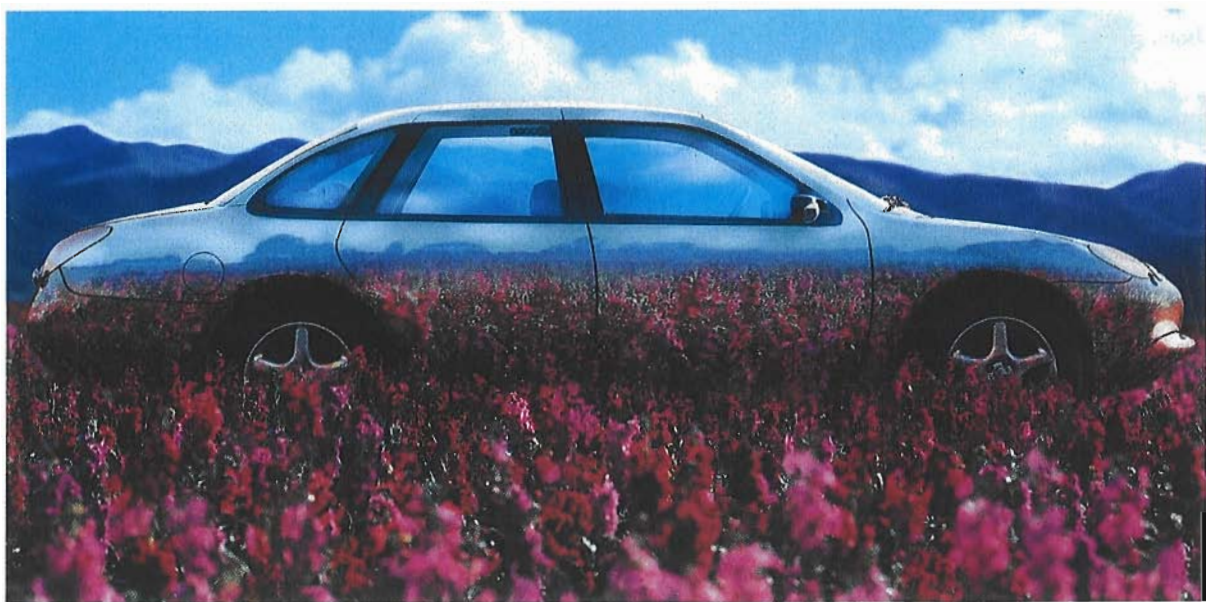
Your option is to become involved by joining other leading U.S. businesses, organizations, and government bodies in the ANSI Federation. As an ANSI member, you can help influence domestic and international policy on standards and trade issues. You can compare how your company manages standardization with some of the "best in class". You can stay informed on future trends that impact your business.

Get involved today and network with leaders in business and industry tomorrow. For more information, contact:

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