The Globalization Industry Primer

An introduction to preparing your business and products for success in international markets

LISA™

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Dear Reader,

The Globalization Industry Primer is based on the two editions of our successful *Localization Industry Primer*. The change in name is more than cosmetic, however. The renaming of the *Primer* reflects the growing realization that globalization cannot be separated from business as normal: globalized enterprises are global in every aspect of their operations, and localization is just one part (albeit an important one) of the picture.

Critics of globalization often view it as a homogenizing force, but the only way for an enterprise to be global is to be simultaneously local in the markets in which it does business. By respecting local languages and cultures at every level—in their products, services, documentation, customer support, marketing, maintenance procedures, business practices, etc.—global enterprises paradoxically expand the options available at the local level. As this enterprise view of globalization has spread, localization has moved further up the production chain. Between 2001 and 2006 LISA's members reported productivity (and ROI) gains of approximately 250% on globalization efforts, an improvement made possible only by the shift from a focus on localization to a focus on globalization.

Since LISA's founding in 1990 globalization and localization have gone from being seen as part of the software industry to playing a fundamental role in almost every vertical industry. Its growth has taken it from humble beginnings to an estimated $30 billion per year and growing industry.

This Primer is designed to introduce you to the concepts of globalization, internationalization, and localization, along with their roles in international business today. It presents the history and current role of the industry and will help you understand the business opportunities that globalization of-

fers to enterprises today. It describes the major parties and technologies involved in globalization and helps you understand the roles they play. It also provides reference information needed to better understand the technical aspects of globalization.

The Globalization Industry Primer distills the wisdom and knowledge of industry leaders, most of whom are members of LISA, the Localization Industry Standards Association (*http://www.lisa.org*). This non-profit organization provides a forum in which organizations can exchange information on globalization best practices, strategies, standards, and business issues. We hope that you will find the Primer useful and invite you to join LISA to learn more about what it takes to prepare your products and services to ensure international success.

Sincerely yours,

Michael Anobile
Managing Director
LISA—The Localization Industry Standards Association

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Introduction

Driven largely by the unprecedented mobility of information enabled by the Internet, fewer and fewer companies can think of business in strictly national terms. Instead, they are finding that they must focus on international business to be competitive even in their home markets. The path to effectively engaging international markets is not always clear however. It is not enough to translate a few manuals and a product's user interface. Organizations must account for a number of business issues if they are to succeed in international markets: local languages, currencies, business practices, technical requirements, and cultural preferences all must be dealt with, as well as marketing and sales and technical support for local markets.

Globalization, as used in this Primer, refers to all of the business decisions and activities required to make an organization truly international in scope and outlook. Globalization is the transformation of business and processes to support customers around the world, in whatever language, country, or culture they require. As long as international business is seen as an add-on process, organizations will never achieve their global potential.

This Primer will help you understand the process of globalization and the key technical processes of internationalization and localization that make globalization possible. It will describe the business and technical issues involved in globalizing an enterprise and introduce the key companies that play a role in this daunting task.

A Global Context

Since the late 1980s, the world has witnessed tremendous economic, political, technological, and social changes. These changes are often lumped together under the term *globalization*. The shift towards international business integration is felt at every level around the world. Whereas a century ago most goods were produced for local or regional consumption, today it is common for a shopper in the United States to buy fruit grown in Chile or a consumer in Brussels to buy clothes made in China. Services once based on face-to-face interaction are now, thanks to the Internet, often carried out in different countries or on different continents from where the consumer happens to be. Even physical products are composed of parts from all over the world. A single model of consumer electronics may have components made in 20 different countries and be sold in 150.

Globalization is not without its opponents, many of whom feel that the international expansion of businesses is leveling local cultures and erasing local differences. As UN Secretary General Kofi Annan put it in his 1999 report to the U.N. General Assembly, however, globalization is "an irreversible process, not an option." What we do have is the option to globalize responsibly, in a way that provides value to people around the world and that respects their local cultures, languages, business conventions and ways of life.

The Localization Industry Standards Association (LISA – www.lisa.org) and its members are committed to a positive approach to globalization. This means that its members focus on responding to local needs, languages and cultures to deliver a variety of high quality good and services, thus offering consumers around the world more choices and better quality. The process

of localization, as described in this *Primer*, is what allows globalization to respect the local practices and customs by adapting to and serving particular markets and people.

Key factors driving the development of globalization include the following:

- **The liberalization and deregulation of key industries**, such as telecommunications and power generation, coupled with a redefinition of the role of the state. This process has fueled private investment and global competition, at the same time that it has provided a political and economic framework for technological innovation.
- **The emergence of capitalism and free trade as the dominant economic model**. Physical and political barriers to communications and trade have fallen throughout the world. Countries (and companies) previously unable to compete globally can now do so with relatively little up-front investment, while countries previously off-limits to foreign competitors now have to open up or risk having their enterprises falling behind.
- At the same time, **regional economic and political communities have emerged in the Americas, Europe and Asia**. Increasing numbers of countries are realizing the advantages of free trade and flexible markets. Key initiatives include those of the World Trade Organization (WTO), which aims to establish ground rules for free trade in products and services, and the protection of intellectual property rights.
- **The creation of a seamless worldwide technical and logistics infrastructure**. PCs, the Internet, and fiber-optic, wireless and satellite networks all have reduced the cost of communications and made it easy to connect around the world. The result has been an unprecedented level of business and personal interconnectivity, as distance and geography have become largely irrelevant. At the same

time, there has been a quantum leap in the speed at which business is conducted, and therefore in required reaction times.

The Internet revolution offers companies the following:

- **A low-cost, worldwide advertising and marketing platform.** By setting up a web site, even small companies can advertise themselves, their products and their services to an audience that potentially extends around the world. In addition, they can use their web sites to directly gather information on customer needs in real time.

- **A low-cost, worldwide sales platform.** The rise of e-commerce solutions enables companies to sell goods direct from their web sites. Payment is typically made by credit card or by debiting an existing offline account, and alternative payment means suitable for specific markets have emerged.

- **A low-cost, worldwide distribution platform.** Any product that can be made available as electronic data (e.g., software, books and other text-based information, music, films and so on) can also be directly distributed via the web. Companies and their customers now expect materials to be available immediately at any time of the day anywhere in the world. This level of expectation is made possible only through the Internet. In the case of physical products such as hardware, cars, etc., worldwide logistics providers now offer efficient international distribution. Shenzhen (China) is now closer in many ways to Los Angeles (U.S.) than Detroit (U.S.).

- **A low-cost, worldwide support platform.** Companies serving a newly acquired international customer base can minimize support issues by providing registered customers with information and contacts via their web sites. Moving support to web sites can drastically reduce support costs. At the same time, it introduces management challenges since companies

must now maintain current versions of support materials for multiple languages.

These radical changes in economics have leveled the playing field, allowing even small companies to compete outside their traditional markets. This also means, however, that their competitors can also take advantage of the same opportunities. Companies can no longer assume that years of investment in a market or previous customer loyalty will protect them from more agile competitors that better meet customer needs. Enterprises that are slow to bring new products to market, or that fail to reinvent existing ones, may well find their place already taken. Global exposure means global competition, while "speed of innovation" leads to "speed of imitation." Competitors can easily research and often copy new features or products within days.

At the same time, the liabilities of economic globalization are becoming increasingly apparent as individuals and organizations highlight the environmental, cultural and personal impacts of globalization. Localization is what allows the benefits of globalization to accrue not only to large companies and powerful nations. Localization lets speakers of less common languages enjoy access to the same products and resources that those in major markets use. It allows the flow of products and information to be two-way, as dominant countries receive goods and services from smaller countries that have traditionally had no access to their markets. When companies localize their products and services, they help to redress economic inequalities and to create a better world in which no one is left out.

History of the Globalization Industry

Globalization is not an easy task. As a result, a distinct industry has grown to facilitate product and service globalization. This industry (often called the *localization industry* because of the importance of localization in any globalization effort) arose in the 1980s from roots in the computer software industry. Unlike most physical products, software was easily portable around

the world and relied heavily on textual content, meaning that it had to be adapted for local languages. While other industries did make use of translation services and sell into other markets, there was no industry specifically devoted to business globalization issues prior to the rise of the software industry.

For a number of years, localization served as a way for software developers to increase sales by entering worldwide markets. A body of companies that specialized in the translation of software and the accompanying technical tasks (resizing dialog boxes, adapting user interfaces, etc.) appeared during this time. This process came to be known as *localization*, to distinguish it from *translation*, which focused on communicating the meanings and messages of words.

In 1990, when LISA was founded, localization was still primarily a function of the software industry, although some expansion was occurring into consumer electronics, medical equipment, and a few other technical fields in which software components were becoming increasingly important. As late as 2001, however, the bulk of the clientele of most localization service providers (LSPs) came from the computer software and hardware industries. As more and more products gained significant information technology components, localization became increasingly common. Leading companies in other industries began to see the benefits of localization in terms of increased sales, lower support costs and the ability to access new markets more quickly.

Today, localization is no longer a function of any one vertical industry, or even of a few. LISA's members include manufacturers of automobiles, heavy equipment and consumer goods, retailers, media and entertainment companies, legal firms, pharmaceutical companies, financial institutions, governmental and non-profit bodies, food services companies, and companies in many other vertical segments. While software localization is still a key

source of revenue for most LSPs, software is now often simply one part of much larger projects that may include localization of hardware, documentation and web content, along with many other components. Thus, the number of localization projects and their complexity has risen exponentially since LISA's founding.

How Big Is the Globalization Industry?

The definitive size of the globalization industry is uncertain. The expansion of globalization beyond the vertical sectors of hardware and software, coupled with the tendency for globalization-related tasks to be treated as project costs rather than as a line item in corporate budgets, makes it very difficult to assess the size of these efforts. Estimates vary by several orders of magnitude. In 2001, LISA published a very conservative estimate that worldwide spending on localization was approximately $5 billion USD per annum, and perhaps as high as $15 billion. To date, there has been no single definitive survey addressing worldwide spending on localization-related spending, so the size of the worldwide market for localization is uncertain.

However, an examination of the revenues of just those 2006 Global Fortune 500 companies that LISA knows to be actively localizing their products or services yields annual total revenues of approximately $5.9 trillion (with profits of $365 billion). If only 10% of their total revenues are derived from international sales dependent upon localization (i.e., sales that would not have been made were products or services not localized), this means that $590 billion of their revenues would not have been achieved without localization. Their net 2006 profits would have been reduced to *-$225 billion*. For these companies, localization is not an option, it is an imperative.

(Note that the portion of revenues from international markets estimated above is likely to be quite low. In 1998 David Brooks of Microsoft reported that:

> In [Fiscal Year] 1998 more than 60% of Microsoft's revenues came from markets outside of the United States. The majority of these revenues come from non-English speaking markets, and a key component of Microsoft's international strategy has been to lead the industry in the delivery of localized products to these markets. In [Fiscal Year] 1998, Microsoft revenue from localized product exceeded $5 billion. Only five years ago, these figures were a fraction of what they are today, and as revenues have grown, so has Microsoft's investment in localization.

With some LISA members' international revenues hovering around 70%, it is clear that localization is a key component of their business strategies. Without localization, they could not maintain positions of world leadership.)

Based on interviews with LISA members and other companies, globalization experts, and companies just beginning to engage in international business, LISA believes that industry size is only half of the picture, and that any complete view of the globalization industry needs to examine the revenues unlocked through globalization. In 2001, LISA members reported that, on average, they achieved $10 of additional revenue for every $1 spent on localization. Since that time, LISA members have almost universally reported 15–25% annual productivity increases on their localization spending. This means that today companies are receiving approximately $25 of additional revenue for every $1 spent on localization, placing the annual spending of the International Fortune 500 on globalization-related services at a minimum of approximately $24 billion. When other companies (as well as governmental bodies, NGOs, and non-profits) are added in, the market is even larger, and it continues to grow every time a new product, service or technology is created, or a language reaches "official status."

While we cannot provide a definitive annual figure for the total localization market, we can estimate total localization expenditures by industry in 2006 to have been approximately $30 billion. Whatever the actual market size may be, it is clear that globalization represents a major opportunity for companies providing the services to support it and for companies looking for a cost-effective means to increase their sales.

Localization

Localization is often treated as nothing more than "high-tech translation," but this view does not capture its importance, its complexity, or what actually takes place during localization. It also hides the fact that localization must be integrated with other business processes if it is to be effective. Localization is an integral part of globalization, and without it, other globalization efforts are ineffective.

So what exactly is localization if it isn't simply translation? **Localization is the process of modifying products or services to account for differences in distinct markets.**

While this definition sounds simple, it actually impacts many business and technical issues and requires a good deal of expertise to implement successfully. Localization involves the adaptation of *any* aspect of a product or service that is needed for a product to be sold or used in another market. This process significantly impacts both technical and business functions within organizations. This includes how sales are made; how products and services are designed, built and supported; how financial reporting systems are implemented; and so on.

While there is overlap between translation and localization, localization generally addresses significant, non-textual components of products or services in addition to strict translation. Localization commonly addresses the following issues:

Linguistic Issues

Almost any product or service that will be sold to individuals who do not speak the language in which it was created will require linguistic adaptation. For example, a piece of computer software will require translation of the textual components of the user interface, online help, user documentation, installers, etc. Beyond the product itself, business needs will require translation of marketing and product collateral materials, web pages, and support materials, and perhaps training documents, internal service bulletins, and other similar components. For media or informatics products, linguistic aspects of localization may also include dubbing and adaptation of speech-based audio components.

While translation of text generally constitutes the bulk of a localization project, it is seldom the only component and may directly impact other aspects of product *design*. For instance, a product's user interface may require modification to support characteristics of particular languages or space requirements may need to be adapted for languages that require significantly more or less space than the original language.

Physical Issues

Beyond translation, localization often involves physical modification to products or services in order to be acceptable in the local market. These changes can represent substantial time and cost. Examples of physical localization include the following:

- Automobiles sold in Australia, the United Kingdom, India, Japan and much of southern Africa (as well as a number of other countries) need to have their steering wheels on the right side of the vehicle. Cars sold in the rest of the world require that their steering wheels be on the left side.
- Electrical equipment sold in the United States and Canada requires 120-volt power, while most of Japan requires only 100 volts. Most

of the rest of the world uses 220- or 230-volt power. In addition, there are thirteen different sorts of electrical plugs used around the world, meaning that even if a piece of equipment is configured for the proper voltage, it may still not work with a particular power system. While it is common now for computers to automatically adjust for power supply variations, other electrical equipment may not work or even catch fire if the wrong voltage is used.

- Radios and wireless equipment sold around the world must be modified to conform to local standards and governmental regulations. A product acceptable in one country may not be legal in another one.

- Computer keyboard layouts vary from country to country (and even within a country if more than one language is used). For some languages, there are multiple ways to input the language (e.g., Chinese and Japanese, or even English). All relevant input methods must be supported if local users are to have access to the equipment.

Some products may also require adaptation to the average body size of people in a given country or need to be adapted to fit local customs. The first hybrid automobiles sold by Toyota in the United States required larger trunks ("boots" in the United Kingdom) than their Japanese counterparts because many American families transported large baby carriages in their vehicles.

While physical modification is not required for most software and user documentation, physical differences may impact software and documentation that refers to or is embedded in hardware. For example, graphical representations of products or items such as electrical outlets may need to be adapted to reflect the particular hardware used in specific markets.

Business and Cultural Issues

Local business and cultural issues can affect all aspects of product design and localization. Local currencies and accounting conventions must be supported. Local address and telephone number formats need to be supported, and even the format of names must be appropriate to the target market. These sorts of issues are often missed by product designers, simply because they are not aware of them. However, they often make the difference between a product that works and is successful in a market, versus one that is frustrating for or even rejected by customers.

Other areas of adaptation include colors and graphics that must be adapted to meet local cultural norms. In addition, product designers must be aware of political and business issues and local cultural expectations. For example, e-commerce solutions must account for local payment preferences and methods, i.e., they cannot assume that credit cards will be available everywhere or universally accepted. These issues vary by country and region, so the importance of local market knowledge cannot be overstated.

Technical Issues

Supporting local languages may require special attention and planning at the engineering stage. For example, support for East Asian languages that require thousands of characters requires special design and attention. Other languages, such as Arabic and Hebrew, are written from right to left, requiring the adaptation of user interfaces and the use of special text-handling routines in software. Other issues include the order in which text is supported (e.g., in Norwegian, the letter *å* follows *z*, while an English speaker would expect it to appear after *a*), date formats, the separators used in numbers, etc. Provision must also be made to allow input of text in the local language. If these technical issues are not considered from the early stages of project development, they will add substantially to the expense and time required to localize a product.

Localizing a product is not a trivial task. In practice, not all products are localized to the same extent. Some products require extensive localization, while others require less. Research by LISA indicates that, in general, the more important textual information is to the function of a product and the more the user must interact with the product, the more localization it will require. Anti-virus software is a good example: since properly understanding what anti-virus software will do to a computer system is vital when a virus is encountered, accurate and easy-to-understand localization is vital. In contrast, a back-end system that requires little interaction with users will generally require less localization.

In the real world of business today, factors influencing the extent of localization include the nature and scope of the product concerned, the size of the target market and audience, the length of the product life cycle and anticipated update frequencies, competitor behavior, market acceptance, and national or international legislation. Only after performing a thorough analysis of these issues, along with the related risks, should a decision not to localize, or to localize only in part, be made.

Choosing what to localize and into what languages (and how extensively for those languages) depends on an organization's specific business priorities and needs. Localization is thus another business process, not a task done for its own sake. That said, localization should not be viewed as just a cost, but as the opportunity cost to unlock new markets.

Internationalization

Localization does not just happen; it must be planned for. Even in the simplest cases, there will be issues that will work against successful localization. Here is just a short list of examples for software localization:

(1) graphics may contain embedded text that must be translated
(2) screenshots may appear in a particular language
(3) phone numbers may be usable only in one country

Because of such issues, a process known as *internationalization* is used to remove cultural assumptions from products during development so that they can be effectively localized.

Internationalization is the process of enabling a product at a technical level for localization. In other words, an internationalized product does not require remedial engineering or redesign at the time of localization. Instead, it has been designed and built to be easily adapted for a specific market after the engineering phase.

Internationalization primarily consists of abstracting the functionality of a product away from any particular culture, language or market so that support for specific markets and languages can be integrated easily. If a product has not been internationalized in advance, additional expenditure will almost certainly be incurred during localization. In some cases, such added expense will make it uneconomical to even localize. As a general rule, it is best to assume that it takes twice as long and costs twice as much to localize a product if it is not properly internationalized to start with. In the case of computer code, the difference can be much greater.

The degree of internationalization required depends, in part, upon the languages into which the product will be localized. If a product starts out in English and will be localized into French, Italian, German and Spanish (the so-called "FIGS" languages that were traditionally the most popular choices for localization), the level of internationalization engineering will likely be less than would be required if the product must support Japanese, Chinese, Thai, Arabic or Hindi, all of which require special planning and design considerations.

Thus, internationalization, like localization, should be considered from a business perspective: In what languages and regions will the product be sold? In what languages will it be sold next year or in five years?

Internationalization requires the active support of everyone involved in product design and development and of corporate management. The temptation is always to put off internationalization and to pass the resulting costs onto the localization team (which usually operates under a different cost center) to save time and money up front. The results are usually less than satisfactory since release dates are pushed back. In addition, functions available in the original language often fail to work in the localized versions.

Proper internationalization requires education and negotiation, as well as formal procedures that are consistently applied. One common problem with software is that developers attempt to add features as late as possible in the development cycle and then switch their efforts to complete the product. After project completion, they frequently take vacations or are reassigned to other projects, leaving localization staff without needed access to key members of the development team during their efforts. Such common working practices can contribute greatly to delays in the release of localized software.

Planning for Globalization

Successful globalization requires proper planning for both the internationalization and localization phases, as well as for ongoing support and maintenance needs. To make proper plans, these two phases need to be understood as part of the larger global product development cycle (Figure 1). When globalization is treated as a cycle, it becomes clear that globalization ties into every level of the business and must be treated as a core function if it is to succeed. (While the following description of the cycle is most easily applied to the software industry, the general principles hold for documentation, hardware, and services with some modification.)

Figure 1. The Global Product Development Cycle for Software

Product Requirements Analysis (Global/Local)

Any product design process starts with a basic requirements analysis. What is the core functionality and content that users—wherever they are—need? What are they prepared to pay money for? What feedback has been received on previous versions, and how do competitors' products compare? What return on investment must be generated within what time frame?

In a global environment, the important point is to make sure that this analysis is conducted not just for the domestic market, but for *all* potential markets. This fact-finding and planning process should draw on the expertise of in-country staff, distributors, and users, at the same time that it takes into account overall ROI (return on investment) and strategic considerations. It must include an evaluation of the potential difficulties in each market and what steps are required to overcome them.

The result of this process is a global product specification that incorporates input from all local markets identified as desirable, rather than a specification developed with a particular market in mind that is subsequently modified more or less appropriately for other markets. In other words, the process requires companies to start "thinking global" from the outset to ensure efficient product internationalization and localization to minimize update and maintenance costs. In particular, the specifications will contain information on the following issues:

- What content and functionality will the global product supply, and what local content requirements exist?
- What functions need to be adapted to conform to local business processes or regulatory practices?
- What technical support and features must be provided? How will they be delivered?
- What languages must be supported and what will be required to support them?

The specification will divide requirements between those needed for all markets, and those needed for specific markets. In addition, the requirements should be prioritized based on assessed need and their market value, so that they can be considered from a business perspective, rather than what is technically required to produce them.

Assessing Market Potential

Organizations just starting the globalization process often are unclear about the size of their potential markets and the costs and benefits of globalization. While localizing a product or service can deliver significant market advantages, it can also incur substantial costs. Therefore, organizations need to analyze their target markets carefully and consult local representatives or partners on the potential return on investment for localization. Only when the market potential is clearly understood should they decide what and how much to localize for a particular market.

Internationalized Product Design

After the product requirements analysis has been completed, the next step is an internationalized product design. This design implements the requirements of the global product requirements analysis. While development will take place in one language, this development must be carried out with other languages in mind. Critical issues to keep in mind include the following (the list may vary for non-software products):

- **Graphics.** Are the graphics used in the product appropriate for the target market? Do they show events or actions particular to one country? If so, can they be replaced by more neutral graphics? (If graphics do need to be specific to a given culture, plans need to be made to replace them with other appropriate graphics in localized versions.)

- **Colors.** Colors may have different values in various cultures. A color scheme that looks very good in one country may appear strange or "foreign" in another.

- **Icons.** Icons often rely on culturally or linguistically specific images to be intuitive for end users. Care must be taken in designing icons so that graphic designers' unconscious cultural assumptions do not lead to icons that are confusing or misleading in other cultures. In some cases (particularly with images of animals or of body parts such as eyes, hands and feet), icons that are innocuous in one culture may be offensive in another.

- **Abbreviations.** Abbreviations are often used to save space in user interfaces and documentation. What happens when they do not make sense in another language or culture, or even sound like offensive words?

- **Product Markings.** Product markings, such as regulatory compliance markings, prices on packaging, etc., are usually specific to a given country and may be meaningless outside of that country. Designs must allow room for the inclusion of any needed product markings.

- **Shortcut Keys.** Since the choice of software shortcut or "hot" keys often relies on mnemonics (such as control-O for "open" or control-N for "new document" in English), they must be adapted for other languages if users are to easily remember them.

- **Forms and Other User Input.** Users must be able to use local data in all forms, so all data processing must accept and work with local input. If a product requires the input of a street or postal address or a phone number, will it accept these in the local format? Will users be able to use their local currency? Does the product assume that personal names come before family names, something that is true in most of Europe and the Americas, but not true in most of Asia and even some parts of Europe? There are many issues to consider, not all of which are immediately obvious.

- ◆ **Text Shrinkage/Expansion.** An important consideration in any product or document design is how to deal with text that takes significantly more or less space than the original that it replaces. The amount of change depends on the languages involved. For example, it is not uncommon for short texts, such as titles or software commands, to be two to three times as long in German as they are in English, while texts in Chinese will be significantly shorter than in English. If insufficient room is left in the design phase for translated text to be displayed, expensive reengineering or redesign may be required during the localization phase. Proper planning requires knowledge of the characteristics of the specific target languages involved.

When these issues are not planned for, the entire globalization process will take longer, be more expensive, and will usually result in products that are not as successful as they should be worldwide. Only when knowledgeable staff members who have the authority to provide input and to make changes are involved early on can such problems be avoided. It is also best to have engineers and content creators involved who are thoroughly familiar with globalization processes and best practices. While it may be expensive to hire such staff, they will more than pay for themselves in improved customer satisfaction, faster time to market and reduced overall costs.

There are two principles to be considered when creating an internationalized product: flexibility and translatability. Keeping these principles in mind throughout the design phase will take care of most potential problems.

A *flexible product* is easily adaptable *by design*. In software, a flexible product is engineered to support multiple writing systems, e.g., languages such as Arabic and Hebrew that are primarily read from right to left. In hardware design, flexibility means the automatic adjustment for different voltages of power input. It means engineering an automobile so that the steering system

can be placed on either side of the car without needing to re-engineer the entire transmission and steering system. Wherever possible, such a product will utilize international and operating system standards that have been designed to work with various languages and cultures. While such design may increase design costs and the cost of the base product, it will save costs overall when international markets are factored in.

A *translatable product* has all of its translatable content written with translation in mind (see the LISA publication *Quality Assurance: The Client Perspective*, available from the LISA web site, for more information on this subject). In addition, all of the content is accessible to translators and can be easily changed. For example, user interface strings should never be hard-coded into software (where translating them requires altering the program itself). Instead, they should instead be loaded from an external resource file so that the translator can easily access them. Markings should not be etched into hardware components. They should be printed separately so that they can be easily altered. In all cases, leaving room for text shrinkage/expansion is a critical aspect in translatable product design.

Internationalized Product Development

The next stage in the process is to develop the basic internationalized product according to the global design specifications. If these have been carefully thought out, the coding and the manufacturing processes will be relatively straightforward. Nowadays, these processes are often outsourced to third parties.

Internationalized Product Testing and Quality Assurance

After initial development, a product needs to be tested against the global product specifications that were developed early on. It is critical that errors be caught at this stage and fixed, or each localized version may require a separate fix for the same problem, increasing development costs dramatically. For software, current best practice includes testing the internationalized product early-on using *pseudo-translation*. This is the process of replacing all

text with "garbage" text that approximates the characteristics of real target languages (such as using accent marks or other writing systems) to find any problems that may result during localization.

The testing and quality assurance (QA) process requires developers to adhere to strict deadlines to allow sufficient time for testing prior to release deadlines. If development milestones are missed, or the product is altered after localizers have begun their work, costs will rise significantly and quality will suffer.

Product Localization

Following QA and testing of the internationalized product, the actual product localization process can then begin. This leverages and implements the criteria for particular target markets established during the requirements analysis phase. In practice, enterprises may be localizing products regularly into 60 or more languages (and sometimes in excess of 170). In some cases, these are divided into three or four different tiers, according to market importance. The aim is to keep the time gap between the appearance of the product in its lead market and localized versions as small as possible, especially for the key, first-tier markets. As a result, many companies aim for "simship"—simultaneous shipment of multiple language versions. The allocation of localized versions to specific tiers may also influence the depth to which products are localized (translation of user interface and documentation alone, content localization, adaptation of underlying functionality, etc.). It is at this point that efficient internationalization will pay off, since localizers will not only have a list of required features for their target versions, but also a globally enabled, stable product with which to work.

Localized Product Testing and QA

The localized versions of the product must also be subjected to rigorous testing. This testing includes technical and linguistic quality assurance, which may be performed in-house and/or by LSPs. If at all possible, such tests

should include in-country validation or acceptance testing by local subsidiaries, distributors or customers. In many cases, the results obtained from one language version are made available to localizers of other versions and developers via a central "bug database" or similar mechanism, in order to cut overall troubleshooting times.

Local Product Marketing, Support and Feedback

After the localized product has been tested and released, it enters the in-country marketing and support phase. Organizations need to develop clear channels for customers to report errors (both functional and localization-related), along with processes to ensure that customer-reported errors make it back to the central development team.

LISA research has shown, however, that obtaining local language feedback can be quite difficult because of the lack of contact between product developers, localizers and the local offices that support products in their markets. As a result, product developers are often unaware of serious problems in localized versions. Too many times, these problems are not fixed, and they lead to decreased customer satisfaction and lower sales. The only way to prevent such problems is to implement consistent reporting processes that result in real changes. For more details, read *Taking Software to the World* (available through the LISA web site).

Starting It All Over Again

By the time a product has been on the market for a brief time, the developer is usually already considering the next version, and the cycle starts all over again with a new set of global and local product specifications. These new specifications should incorporate specific requirements to address any issues that were encountered in the last cycle so that changes are implemented and problems are avoided. Very often, developers will become familiar with issues that they did not initially anticipate. Their updated solutions can be rolled into the next release.

Global Business Priorities

What markets and languages are most important in today's global business environment? What products are most dependent on localization?

Strategic and Maintenance Markets

International markets can be divided into two groups. *Maintenance markets* are those markets where an established customer base already exists. *Strategic markets* are markets where an organization hopes to gain a presence, either for strategic purposes or to facilitate new growth. Globalization approaches for these two sorts of markets are rather different. (A market can exist as both types if an organization is marketing multiple product lines.)

In the case of maintenance markets, legacy documents usually exist in the local language(s), along with a significant customer base. As a result, existing localization tends to be quite extensive. The localization efforts tend to focus on incremental updates to product lines and on support of existing revenue sources. Costs of localization for maintenance markets are usually low if linguistic localization technologies have been implemented well.

Strategic markets, in contrast, usually do not have a large base of existing customers or localized products. Localization tends to focus on essential items such as web sites, user interfaces, documentation and sales materials. Initial localization costs may be quite high since all pieces are being processed for the very first time. Localization of support and other secondary materials tend to be put off until it is clear that market returns will justify the time and effort needed for full localization. Localization costs in strategic markets may initially cost more than direct returns, but the goal in a

strategic market is to use localization to grow market share and build market revenue streams in the long run.

While the division between strategic and maintenance markets will vary based on an organization's history and by how mature its localization efforts are, there are some clear trends as to what markets are considered strategic on a global basis. China is currently (as of 2007) the strategic market attracting the most attention on a global scale. The country's opening up to foreign investment and its booming economy have combined to make China highly attractive. India is also increasing in importance as a strategic market due to its burgeoning economy and developing middle class. India's linguistic fragmentation (over 400 languages are spoken there) and a lack of good computer support for most of those languages make localization for the Indian market difficult, but English is widely spoken by the educated classes. Brazil and Russia are two other major strategic markets. The United States/Canada and the European Union also serve as major strategic markets for organizations coming from other regions of the world.

Languages

Because of localization's historical emergence from the computer software and hardware industries, which were largely based in the U.S., English is the overwhelming source language in localization. It is the source language in approximately three quarters of the language pairs used in localization.

Top target languages chosen by organizations include French (56%), Spanish (53%), German (50%), English (35%), Japanese (29%), Simplified Chinese (27%), and Italian (21%), with all other languages figuring as targets for less than 7% of organizations (source: *Global Business Practices*, LISA, 2006, p. 13)

The major shift in language priorities since 2000 is the emergence of the People's Republic of China as a major market and the corresponding rise of

Simplified Chinese as a major target language. This prominence is a result of major corporations vying to establish themselves in the Chinese market now to take advantage of future growth. Comparatively little localization is taking place from Chinese into other languages, though this will increase as Chinese companies continue to build global brands.

Market Players

The current globalization market depends on the following players to deliver results:

- **Clients**: content/product creators, with or without in-house localization (management) facilities, whose primary focus is on creating products or services
- Localization service providers ("vendors") providing local-language engineering, linguistic, and auxiliary services
- Consultants of various expertise providing services to both the above-mentioned groups
- Academics and training organizations providing training or research in globalization-related topics and skills
- Tools developers who provide globalization productivity tools (see the section *Globalization Technologies and Tools* for more information)

Individual organizations may fill multiple roles, and it is common for clients, service providers, and academic organizations to develop their own tools, while vendors, academics, and tools developers often provide consulting services.

Clients

Until the mid 1990s, the client side of the globalization industry was dominated by a relatively small number of IT companies. Initially these clients tended to localize products either through local distributors or with in-house localization teams. As the demand for rapid, high-volume globalization (with corresponding peaks and valleys in demand for services) increased,

Service	Percentage Outsourcing
Document translation	85%
Software localization	52%
Graphics translation/localization	51%
Web site localization	49%
Proofreading/editing	48%
Multimedia localization	37%
Internationalization	37%
Technical Writing	36%
Telephone interpretation	34%
Testing	28%
Localization of embedded systems/informatics systems	26%
Conference interpretation	20%
Escort interpretation	8%

*Table 1. Outsourcing of globalization-related tasks by clients (source: **Global Business Practices**, LISA, 2006, p. 10).*

the in-house model increasingly fell out of favor. Clients now usually partner with globalization service providers to meet their needs. Client-side headcounts for globalization-related services have fallen as a result and it is common for very large client organizations involved in globalization to have only a few full-time localization staff. These staff are usually dedicated to engineering, internal education, vendor selection, and product management, rather than to the actual task of localization.

Translation is the most frequently outsourced globalization skill, with 85% of clients outsourcing it. Overall outsourcing levels continue to increase, having risen since 2000. **Table 1** presents outsourcing rates for various tasks in 2006.

Subject Matter	Percentage Purchasing
User documentation	58%
Software/IT	48%
Marketing	35%
Legal	23%
Sales support	22%
Regulatory compliance	19%
Engineering	17%
Medical/Life sciences	15%
Customer support	13%
Organization administration	13%
Literature	9%
Banking/finance	6%

*Table 2. Percentage of clients outsourcing translation/localization by subject matter (source: **Global Business Practices,** LISA, 2006, pp. 10–11).*

User documentation is the type of content most frequently outsourced by clients, followed by software, marketing material, and legal documentation. **Table 2** presents the percentage of clients that outsource various types of material for localization/translation.

Service Providers and Consultants

Modern globalization service providers have grown from companies providing translation services to providing globalization-specific services. Many of these companies originally specialized in a single language (and are thus called "single-language vendors" or SLVs) and offered very high quality services that language. However, as client needs for comprehensive solutions have grown, "multiple-language vendors" (MLVs) have become the major force in the industry. These vendors offer project management and a broader range of services and languages. MLVs typically subcontract to SLVs and free-lance localizers to deliver portions of their services. Since the mid 1990s

Subject Matter	Percentage Providing
User documentation	75%
Software/IT	75%
Marketing	60%
Medical/Life sciences	59%
Legal	51%
Engineering	48%
Sales support	37%
Customer support	35%
Organization administration	32%
Regulatory compliance	29%
Banking/finance	27%
Literature	21%

Table 3. Percentage of vendors providing translation/localization services for various subject matters and application areas (source: Global Business Practices, LISA, 2006, pp. 10–11).

the vendor segment has seen intense competition and consolidation in the MLV sector. These larger MLVs are able to provide comprehensive services to large multinational organizations. SLVs and smaller MLVs often enjoy considerable success by focusing on particular industries or technical skills. Because of such specialization, the distinction between vendors and consultants has become somewhat blurred.

Table 3 presents the percentage of vendors providing services in various specific subject matters.

Tools Providers

Globalization depends heavily on technology and the developers of globalization technology tools are an important part of the industry. Some clients and service providers are also involved in tools development: approximately

10% of organizations develop their own TM tools and many more develop custom tools to address specific problems and issues that they face. The overwhelming majority (over 90%) of organizations involved in globalization, however, rely on commercial tools to some extent (source: *LISA 2004 Translation Memory Survey*, LISA, 2004, p. 11).

Global Scope

The globalization industry is globally based. LISA members have come from over forty-five countries, and LISA holds forums each year in the United States, Europe, and Asia. The majority of LISA's client members earn at least 20% of their income outside of their home countries, with many earning far more internationally. The bulk of localization work is conducted in the countries where the final product will be sold and the number of languages they localize into is only increasing. Fifteen years ago ten target languages was considered a large number, but organizations now routinely localize into thirty or more languages, and some localize into well over 100. Without localization, the international expansion this increase represents would have been impossible. These is also an increasing trend toward "reverse localization," in which products developed in small markets are localized for sales in the U.S. and other traditional sources of localization.

Technologies and Tools

There are two main categories of globalization tools: language technology tools and tools used to manage the globalization process. Both sorts of tools are essential in modern globalization workflows if quality, speed and volume demands are to be met. These tools can result in significant cost savings for organizations that use them, with one large multinational corporation reporting annual cost savings of $750 million U.S. from the use of translation memory technology alone.

Language technologies do not replace skilled human translators. Instead, they allow translators to deliver better results in shorter times and to add value to the globalization supply chain. Predictions that computers would replace humans as translators have been made since the 1950s, but this appears no closer to being true today than it was fifty years ago. What has happened is that technologies have automated some of the most tedious and error-prone tasks of translation and resulted in translation volumes that would otherwise be impossible to deliver.

Key language technologies include the following:

Terminology Management Systems

Quality translation relies on the correct use of specialized terms. It improves reader understanding and reduces the time and costs associated with translation. Special terminology management systems store terms and their translations, so that terms can be translated consistently. Full-featured systems go beyond simple term lookup, however, to contain information about terms, such as part of speech, alternate terms and synonyms, product line

information, and usage notes. They are generally integrated with translation memory systems and word processors to improve translator productivity.

Translation Memory (TM)

Texts are often revised slightly for new product versions. When these revised versions are retranslated, it does not make sense to have someone retranslate those portions of the text that are unchanged. As a result, technology called translation memory (TM) is used to store texts and their translations, broken down into small pieces (usually sentences) called segments. When a new version of the text is translated, the TM tool processes the text and automatically replaces those parts that are unchanged with the previously created translations. This allows the human translator to focus on the new content. In the case of text that is only partially changed (so-called "fuzzy" matches), the translator is given the nearest matches and their translations for reference and editing. This process is called *leveraging*. Translation memory is most efficient for revisions of existing texts, but is sometimes used within projects where there is significant duplication between components (e.g., online help and user manuals) to create *internal leveraging*. The quality of results from translation memory depends on the quality of previous translations. The efficiency depends on how well the database is maintained and how proficient translators are in using the tool.

Machine Translation (MT)

Unlike translation memory, machine translation (MT) actually translates text that is not in a database. Most MT systems grammatically analyze (parse) the source text and then generate a translation based on this analysis. Newer technologies are based on statistical analysis or on a hybrid approach that leverages both linguistic and statistical analysis.

The results of MT are generally not as good as translations produced by humans, but are useful for understanding roughly what a text says (a process known as "gisting"). MT is often used to determine whether a human trans-

lator should prepare a high-quality translation. Through Internet translation portals that make use of machine translation, it is perhaps the most commonly used translation tool in the world, but such results are seldom incorporated into localized documents for publication. In some cases, human translators edit machine translation results to produce final translations in what is called "post-editing."

Machine translation can be used to provide very high-quality translations under certain controlled circumstances. It is also critical for providing translations of materials (such as results from database queries) that are time-sensitive and which cannot wait for the time required for human translation. (To learn more about machine translation, please see the LISA Best Practice Guide, *Implementing Machine Translation*, available through the LISA web site.)

Localization Workbenches

Localization workbenches are tools that combine translation technologies together into a single application. Translation memory and terminology management, for instance, are often combined. Specific workbenches may be optimized for specific tasks, such as software localization, document translation or software testing. Those intended for software localization often include the ability to extract text from resource files, provide pseudo-translations (see the section *Internationalized Product Testing and Quality Assurance* for more information), and edit program resources such as dialog boxes and icons.

Global Content Management Systems (GCMS)

Traditional localization processes typically relied on a workflow in which entire projects (often consisting of hundreds or thousands of files) were completed and then localized into multiple languages. However, this model is not suitable for web sites that are constantly changing, often with little or no central control over the process. Manually tracking site changes is

an almost impossible task, so global content management systems (also known as *global translation management systems* or *globalization management systems*) starting appearing in the late 1990s. These systems were specifically engineered to facilitate localization of web site content, but have since been extended to work with other content. Their functionality is increasingly being integrated with general content management systems (CMS).

GCMS typically consist of an engine that monitors content for change and a component that, using business rules specific to each organization, passes content to translators or other linguistic tools for further processing. It also manages the workflow and synchronization of translated content with the source language versions.

Although GCMS are complex tools, they are currently the only way to successfully localize the large and dynamic bodies of web content that customers increasingly rely upon for everything from sales to tech support. (For more information on GCMS, please read the LISA Best Practice Guide, *Managing Global Content*, available through the LISA web site.)

Evaluating and Ensuring Success

Attention to certain details will help organizations evaluate the success of their globalization efforts. Here are some recommended guidelines:

- **Make the globalization process transparent**. In most cases, direct localization costs are only a portion of the costs of globalization. Internal costs for project management must be considered. Globalization projects may need to aggregate costs from a number of departments (e.g., product design, development, project management, document authoring, web site development, and marketing) for each market if accurate statistics and business decisions are to be made.

- **Establish actual revenue streams**. In many industries, it is now common to distribute products which the user can set up to use in various languages, a practice which may make it difficult to identify which languages are actually being used. To have an accurate idea of globalization ROI, it is important to develop processes to evaluate which versions are actually being used.

- **Manage globalization cost-effectively**. Companies will find that they are equipped to handle certain globalization tasks in-house, while other tasks are best outsourced. They need to periodically assess their in-house capabilities and costs versus what they outsource to make sure their globalization-related needs are being met cost-effectively. They also need to evaluate the impact of their business models on time-to-market and product quality, and how those impact their overall ROI.

- **Don't make purchasing decisions based on price alone**. Other factors are often more important. These include quality, experience

in a particular market segment and understanding of an organization's requirements. As with most other purchasing decisions, the cheapest bid will often not be the best offer. Organizations that make outsourcing decisions on a price basis alone are likely to achieve substandard results.

Best Practices and Standards

The number of globalization services, technologies and processes has grown considerably in recent years. As these various solutions have developed, and as users have wanted to be able to take advantage of the best solutions, the need for standardization has also grown. There is also emerging consensus regarding industry best practices, much of which has been encapsulated in *LISA Best Practice Guides* (available from the LISA web site).

Standards for Quality Management

Historically, staff members who reviewed materials looking for errors typically provided their assessment of overall project quality. This process is highly subjective and disagreements regarding quality are common. In addition, many times the problems reviewers identify are actually problems in the *source text* that were faithfully localized.

Because of the difficulties in assessing quality, most globalizers implement a formal quality management process. Among the most popular quality standards are the ISO 9000 series, Total Quality Management (a generic standard that can be customized for any industry), EN-15038 (a European Union standard), DIN 2345 (a German standard), and CMM (for software development). The LISA QA Model (version 3.1 as of January 2007) is the most frequently used quality assessment tool for localization. This tool was developed by LISA in conjunction with its members to address globalization quality issues not normally addressed by translation standards. In practice, many of LISA's members implement multiple standards to provide customized quality management solutions that can be easily adapted to current needs.

Standards for Linguistic Data Interchange

According to LISA research, the value of translation memory data exceeds the cost of globalization tools by a large factor. Standardization is very important if substantial organizational assets are not to be limited in application by a comparatively low-value tool. As a result, LISA has actively developed standards through its OSCAR (Open Standards for Container/Content Allowing Re-use – http://www.lisa.org/sigs/oscar/) Special Interest Group. Standards developed by OSCAR include the following:

- **Translation Memory eXchange (TMX)** for the interchange of Translation Memory data between tools.
- **Term Base eXchange (TBX)** for the interchange of terminological data
- **Segmentation Rules eXchange (SRX)** for defining how TM tools segment source texts to produce their databases, an important consideration in making TM data portable between tools.
- **Global information management Metrics eXchange (GMX)** for representing the volume (word or character count), quality expectations, and complexity of localization jobs. As of January 2007 only the volume portion of the standard has been released.
- **xml:tm** for embedding text memory (including translation memory) within XML documents.

In a 2003 interview, Mr. Glenn H. Nordin, Assistant Director (Language), U.S. Department of Defense, stated that, "language technology tools purchased by the U.S. government are expected to implement TMX and TBX among other open standards like Unicode." Other large organizations around the world also mandate use of LISA standards. In November 2006, the International Organization for Standardization (ISO) and LISA jointly announced that TBX would be submitted to ISO for ratification as a joint LISA/ISO standard, a move that will further facilitate its adoption by national governments and large international organizations.

Business Practices

As an emerging and fast-moving industry, globalization needs to rapidly develop and disseminate best practices for successfully creating, building, marketing and supporting products and services worldwide. As the premier global business industry association, LISA has played a central role here. Its initiatives include a code of practice for LISA members and a Common Bidding Platform designed to help standardize client-partner expectations. By defining a project's deliverables in terms of its languages, engineering, technology and documentation requirements, customers and their service partners are in a good position to establish reasonable time, cost and quality parameters for any type of localization project.

Future Challenges

The globalization industry is still relatively young and changes are rapid. The following challenges are especially important to organizations involved in globalization:

Technology and Organizational Processes

Globalization processes are often divided between a number of different departments, so it is difficult for organizations to control their globalization efforts and gain an idea of their true scope. Because of this lack of visibility, organizations often face significant difficulties in making sure that globalization best practices are implemented uniformly throughout the organization. They also have problems in making sure that problems discovered in one phase of the process are reported to those responsible for solving them.

Despite recent improvements in standardization, not all globalization tools fully support standards, and there is often considerable difficulty in integrating tools into an efficient automated workflow. Much work remains in the integration of globalization tools with other enterprise content management and development tools.

Strategic Importance

Despite the important of international revenues for many large organizations, upper-level management often does not see the connection between globalization efforts in the organization and these revenues. Rather than treating globalization as the key to unlocking international markets, they treat it as a primarily linguistic process and a cost to be minimized. While cost reduction is always a goal, the result is that organizations cut corners to save a little cost but then face resulting expenses that are much higher than

what they saved initially. Until globalization is seen as the strategic issue that it really is, rather than as a simple expense—and integrated into the organization's business processes—cost, quality, and efficiency will all suffer.

Managing Global Content, Not Projects

The globalization industry initially focused on localization of products or services, but organizations increasingly demand global content management, in which content-creation and -management tools can interact with content in any language. Integration of localization technologies with content management is an area of active and ongoing development.

International Support

Organizations are often very good at releasing their products in multiple markets, but post-sales support remains a major issue for many organizations. The development of globalization workflow tools that address web content in particular has aided many organizations to move support to the Internet, but LISA research shows that they still have a long way to go if they are to provide full-spectrum support to international users (source: *Taking Software to the World*, LISA, 2005; see the results from LISA's Ten Best International Web Sites Awards program as well).

Increased Focus on Value Creation

Localization has traditionally been seen as a pure service industry that adds little value to international business. As the proportion of revenues from international markets increases, however, localization service providers have the opportunity to recreate themselves as full-service globalization solutions providers that can partner with their clients to deliver internationalization services, local market analysis and advising, global product design consulting, testing, and other value-added services.

Glossary

Enabling

Sometimes used as a synonym for internationalization.

Gisting

Use of machine translation to provide a rough translation of text in order to determine its content.

Globalization

The process of making all the necessary technical, financial, managerial, personnel, marketing and other enterprise decisions necessary to facilitate international business.

Global Content Management System (GCMS)

A translation tool designed to automate translation of web site and other content that changes frequently.

Internationalization

The process of ensuring at a technical/design level that a product can be easily localized.

Localization

The process of modifying products or services to account for differences in distinct markets.

Machine Translation (MT)

A translation tool that automatically translates text not previously seen based either on linguistic parsing or on similar text stored in a database (example-based machine translation)

Multiple Language Vendor (MLV)

A relatively large localization service provider that offers a wide range of languages and other services.

OSCAR

Open Standards for Container/Content Allowing Re-use, LISA's special interest group for the development of globalization-related standards

Simship

An abbreviation for "simultaneous shipment," the release of multiple product versions at the same time.

Single Language Vendor (SLV)

A relatively small localization service provider offering services in only one or a few languages.

TBX

Term Base eXchange, the LISA standard for representing terminological data for purposes of exchange or interchange.

Terminology

A database of specialist words for a subject area or areas used to facilitate high-quality human- or computer-aided translation.

TMX

Translation Memory eXchange, the LISA standard for representing translation memory data for purposes of exchange or interchange.

Translation Memory (TM)

A translation tool that stores text segments (usually sentences) and their translations in a database and automatically retrieves translations for text that is already in the database (usually from a previous version of the text). The tool may also find similar segments and their translations to assist the translator.

About LISA

What is LISA?

Founded in 1990 in Switzerland as a private, non-profit association, LISA is the premier organization for the GILT (Globalization, Internationalization, Localization, and Translation) business communities. Over 400 members from leading IT manufacturers and solutions providers, along with industry professionals and an increasing number of corporations from various vertical market segments with an international business focus, have helped establish LISA best practice guidelines and language-technology standards for enterprise globalization. The Association is managed by a full-time Director and support staff and advised by an Executive Committee elected from amongst its corporate members.

What Are Its Goals?

LISA defines its mission as "promoting the localization and internationalization industry and providing a mechanism and services to enable companies to exchange and share information on the development of processes, tools, technologies and business models connected with localization, internationalization and related topics". One of the main vehicles for this are the LISA Forums, at which members can listen to acknowledged industry experts and exchange news and views, thus ensuring that multilingual software, documentation and other products are manufactured worldwide to the highest possible standards. In addition, LISA gathers, processes and distributes a wide range of information on the industry and relevant issues.

What Are LISA's Values and Principles?

LISA seeks to promote the following values in the globalization industry and among its members:

- **Global Responsibility.** Companies doing business around the world have a responsibility to respect the nations and cultures with which they do business. Localization provides the means by which companies can enter multiple markets with sensitivity and respect.
- **Global Entrepreneurship.** Globalization allows for the spreading of prosperity across national boundaries and the extension of benefits around the world. By taking a leading role in global entrepreneurship, LISA's members are in a position to promote the benefits of globalization
- **Global Leadership.** LISA's members represent companies taking a lead in global business. LISA members understand the value of global business and localization and are in a position to lead their partners and others into responsible global business practices.
- **Global Cooperation.** LISA promotes cooperation on a global scale, with companies and individuals coming together to work on areas of common interest.

What Services Does LISA Offer?

Services provided by LISA to its members include the following:

- Regular LISA Forums in different venues throughout the world
- Regular LISA Workshops offering hands-on skills training and in-depth discussion for translation tools, Machine Translation, multiple language workflow, and similar topics
- Strategic seminars geared to education decisions makers in the private and public sectors, business consultants and the media about the importance of globalization and localization
- Special Interest Groups (SIGs) for consultation and work on specific topics like terminology and standards
- Industry and member surveys, plus information from standards bodies and other sources

- A constantly updated web site of online resources and industry updates with archive service for previous forums, presentations, surveys, and special reports

How Do I Join LISA?

LISA offers a variety of membership plans to suit the needs of different organizations and individuals. For more information on LISA membership, please visit the LISA web site.

Additional Resources

The following resources will aid anyone interested in learning more about globalization. No claims are made to comprehensiveness and LISA does not assume responsibility for any non-LISA resources listed.

The LISA Web Site – www.lisa.org

The LISA web site is LISA's primary portal for information on events, publications, members and activities. While much of the information is available to the public, some materials are available only to LISA members.

Globalization Insider – www.localization.org

The *Globalization Insider* from LISA brings you the business perspective of operating in a knowledge-based economy. Ranging from interviews with thought leaders to special reports on implementing new technologies, workflows and standards, the *Globalization Insider* is your ticket to a greater understanding of what is crucial to managing multilingual information and increasing your company's international business performance.

LISA QA Model

The LISA QA Model offers a standardized quality assurance model for product localization that covers everything from documentation, help and software to packaging and CBT tutorials. The QA Model features a standalone, user-friendly user interface. Copies of the LISA QA Model can be ordered through the LISA web site.

Surveys

LISA surveys cover many areas of interest in globalization and are available for sale or download via the LISA web site. Recent surveys include the following:

- **Global Business Practices Survey (2006)** – an examination of global business trends related to translation and localization
- **Taking Software to the World: The Global Software Survey (2005)** – a study of the impact of quality issues in localized software on customer satisfaction and retention
- **Terminology Management Survey (2005)** – terminology management best practices and trends
- **LISA/OSCAR Translation Memory Survey (2004)** – trends in the use of translation memory technologies and standards
- **GILT Industry Salary Survey (2003)** – pay levels for globalization professionals
- **LISA/OASIS Global eBusiness Survey (2003)** – global eBusiness trends and adoption of key technologies
- **CCID/ECCS/SMP/LISA Asian Globalization Resources Report (2003)** – in-depth examination of the Chinese globalization services market

Other Standards Bodies

The following bodies are active in areas related to globalization technologies and practices:

- **The Unicode Consortium** is a non-profit organization founded to develop, extend and promote use of the Unicode Standard, which specifies the representation of text in modern software products and standards. **www.unicode.org**
- **The w3c Internationalization Activity** works with w3c working groups and liaises with other organizations to make it possible to

use web technologies with different languages, scripts, and cultures. **www.w3c.org/International/**

* **OASIS** is a not-for-profit global consortium that drives the development, convergence and adoption of e-business standards. **www.oasis-open.org**

* **IDEAlliance** (**International Digital Enterprise Alliance**) is a not-for-profit membership organization whose programs and activities enable its members to participate in the development of standards and best practices, influence the development of tools and technologies, develop strategies and partnerships to deploy technology solutions, and position themselves as industry leaders. **www.idealliance.org**

Books

The following books deal with the technical aspects of globalization:

* Bean, James. *Engineering Global e-Commerce Sites*. Elsevier Science. 2003.

* Dunne, Keiran J. *Perspectives on Localization*. John Benjamins. 2006.

* Dr. International. *Developing International Software.* Microsoft Press. 2002

* Esselink, Bert. *A Practical Guide to Localization*. John Benjamins. 2000.

* Gillam, Richard. *Unicode Demystified: A Practical Programmer's Guide to the Encoding Standard*. Addison-Wesley. 2002.

* Lunde, Ken. *CJKV Information Processing*. O'Reilly & Associates. 1998.

* O'Connell, Fergus. *How to Run Successful Projects II*. Prentice Hall. 1996.

- O'Hagan, Minako, and David Ashworth. *Translation-Mediated Communication in a Digital World: Facing the Challenges of Globalization and Localization*. Multilingual Matters. 2002.

- Rätzmann, Manfred, and Clifton De Young. *Galileo Computing Software Testing and Internationalization*. (Available as a free PDF download exclusively through LISA)

- Savourel, Yves. *XML Internationalization and Localization*. Sams. 2001.

- Sprung, Robert (ed.). *Translating into Success: Cutting Edge Strategies for Going Multilingual in a Global Age*. John Benjamins Publishing. 2000.

- Unicode Consortium. *The Unicode Standard, Version 5.0*. Addison-Wesley. 2006.

- Yunker, John. *Beyond Borders: Web Globalization Strategies*. New Riders. 2002.

The Localization Industry Standards Association

www.lisa.org