



# MultiLingual

October/November 2007

## LOCALIZATION GETTING STARTED: *Guide*



GETTING STARTED  
IN LOCALIZATION

MOVING BEYOND THE  
*Ad Hoc* RACY OF LOCALIZATION

TECHNICAL CHALLENGES  
AND LOCALIZATION TOOLS

FIVE STEPS FROM  
LOCAL TO GLOBAL

AUDIO LOCALIZATION FOR  
LANGUAGE SERVICE PROVIDERS

# LOCALIZATION

## Guide: GETTING STARTED

**GETTING STARTED:** *Localization* has several meanings. The term has recently been used to refer to the practice of supporting local purveyors. Medically, it is a restriction to a particular area of the body. But one very basic definition, “to make local,” is the succinct expression of what it means to localize: to render a product or document so comfortable for a local user that the possibility of foreign origin is not even considered. In this guide, we pursue keys to that comfort.

Dan Johnson addresses business considerations for getting started in localization. Ginette Lytton Cobbold and Renato Pontes outline five steps to creating a global enterprise from a local business. Janaina Wittner and Daniel Goldschmidt describe tools and systems available to overcome technical challenges. A capability maturity model, described by Donald A. DePalma, helps organizations improve localization processes. Fulvio Sioli, Fabio Minazzi and Andrea Ballista describe what is involved in audio localization, which many companies are moving into.

There is much to learn and consider, but by reading this guide, you make a good first step toward getting comfortable with making people comfortable — via localization. — *The Editors*

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# GETTING STARTED IN LOCALIZATION

DAN JOHNSON

**G**etting started in localization can sometimes be as simple as asking, “Where do I find a person who speaks XYZ language?” In other cases, online machine translation (MT) may be the right approach for quick-turn, simple translations where only “the gist” is necessary. But for those projects where a high-quality, cost-effective solution is required, getting started means designing a “process” or workflow that meets the needs and expectations of the end user. Most localization is outsourced to vendors who specialize in providing language services, so understanding the procedures they will perform, what or whether quality assurance (QA) steps are included, and where the project team is located is critical.

The process employed by localization vendors is also affected by advances in publishing, the introduction of new technology and the changing expectations on the part of customers, vendors and translators. As you consider options for starting localization, it is a good idea to review how your current English-language content is created, published, distributed and actually *used* by your end users. In many cases, localization requirements must be fulfilled immediately, and there may not be time or interest to address big-picture, holistic process evaluations. Even when introspection and planning are not options, however, you still need to determine where you need to be and how you will get there. If your situation allows process review and possibly even tool evaluation, resources such as this magazine can provide information about trends in localization and publishing.

Last, I’ll discuss a set of short-term objectives to shoot for and long-term goals to keep in mind as you develop your localization and plan for future projects. Measuring against a few simple objectives and goals creates a perspective for evaluating success and deciding what elements of the program still need improvement.

## Situational awareness

The first step toward designing a localization process is knowing *where* you are, *what* you have to work with and *how much*

*time* you have available. When the time comes to move forward, having a clear picture of your current situation and resources provides your basis for decision making.

This list suggests a few of the main considerations.

- **Source content.** What file types are you working with? Do you have static content embedded in an application, help systems or documentation files? Or are you working with dynamic, database or content management system (CMS) content? In some cases you may have some of both. You may, for example, be preparing to localize both a product and its accompa-

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a few simple  
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success.*

nying documentation for which localizable content is stored in a database-driven web application and a FrameMaker file.

- **Contributors and production process.** How many authors are creating the content? Are they contributing to the same source or multiple sources? When, how and by whom will new content be approved for translation?

- **Timeframe and available resources.** Looking at your process in a linear timeframe, how soon after the source language version is completed will the target language versions be needed? Another significant factor is managing change during the localization process.

- **Publishing.** How do you plan to present the information to the user? If it is

software, will the application run on a local-language operating system, multiple operating systems or online? For user assistance, do you plan to provide your users with printed materials, PDF or online documentation, help, Wiki or perhaps a combination of several of these?

## Laying the groundwork, assessment

Now that we have performed the situational analysis and have our feet solidly planted relative to our source, resources and timeframe, how do we go about planning a localization project?

Let’s begin with a process summary. The core steps for the localization of software and user assistance are basically the same, including these:

- **Source content is provided and prepared for translation.** In some cases a translator may work directly in the source file. For example, if computer-aided translation (CAT) software is not being used, translators may work directly in Word, Excel, PowerPoint or in some cases even in resource files or publishing applications. This, however, requires a certain level of technical competence on the part of the translator in order to ensure that the content structure or product functionality will not be too severely harmed during translation.

If you are working with an established, professional localization vendor, the expectation is that the source content will be “prepared” prior to the translation step. This will involve isolating the translatable text from the tags or code where the content resides. There are two reasons for this. First, most translators prefer and are trained to focus their energy on the conversion of source to target language. We have found that it is inefficient and a significant risk when translators attempt to navigate through tags or code in order to perform their translation. Second, if CAT tools are being used in the process, the content must be prepared to a standardized format in order to process the file. In most cases, RTF is the format used during the translation and editing steps.

- **Content is submitted to translation and editing.** One translation step may



be adequate for simple content. In most cases, however, multiple translation and editing steps are necessary in order to maintain adequate quality and consistency. We use and advocate a translation and copy-editing process where the primary translator converts from source to target and then that source-plus-target is given to an editor who reviews the target

translation against the source and provides suggestions, changes and feedback to the primary translator. This copy-edit step, which is often skipped by companies that hire their own linguists or use their own employees, is critical in large-volume localization projects where multiple translators are used.

A professional translator can be expected to produce roughly 2,000 words per day of translation for most types of content. This equates to 10,000 words per week of production per target language. Should a project timeline require faster productivity in order to meet delivery requirements (a common situation), multiple translators for each target language are needed in order to increase throughput. Using multiple translators creates a risk of inconsistency, which can be mitigated by using unified terminology, server-based translation memory (TM) and style guides. But channeling all of the translation for a given language through one copy editor is the best QA procedure for maintaining consistency.

- **Publishing a draft deliverable.** After translation, the target-language content must be put back into the original format. In most cases, some degree of modifications will be needed because of text expansion or contraction to ensure that characters are displayed properly and that the act of translation has not somehow compromised the functionality or readability of the materials. This may involve functional review/validation and/or reformatting of a document.

- **Linguistic review of the draft target languages is also recommended.** In nearly all cases, the translated text should be reviewed in context prior to final distribution. In many cases, software strings are translated out of the context of the actual user interface, so the linguistic reviewer will need to test a draft build of the translation and make changes where appropriate. You may also want to have a single linguistic reviewer read all of the printed materials for a given product to ensure stylistic consistency across product components that may have been translated by different resources at different times.

- **In-country review.** Following the draft build and linguistic review step, the final product is ready for release/distribution. Prior to or simultaneous with release, we advocate having one of your in-country associates review the target-language product. This review enables you to solicit comments from your in-country product leads

or distribution network. This feedback can then be integrated back into future product releases, which effectively works as a feedback loop for your global team.

- **Update the TM.** If CAT tools are being used in your localization process, the last process step is to update the TM database with your final target-language translation. With an up-to-date TM, the cost of future localization projects will be significantly reduced by re-using previous translations.


### Options and time to plan

In all too many cases, localization projects come up out of nowhere and must be started and completed yesterday. Consider yourself fortunate when there is time to plan, evaluate vendors and perhaps even develop documentation toolsets.

Now, more than any other time in the short history of commercial content localization, a broad selection of tools and vendors can be combined to suit your business conditions and desired outcomes. The tool choices for managing software development and documentation are also both developer and localization friendly. Moreover, the days of running non-Unicode applications on specific target-language operating systems, worrying about extended character and browser support and most of the “can’t get there from here” technical issues, are in the past.

CAT/TM tools have already come a long way in terms of usability and flexibility, and the rate of change is only accelerating. Historically, these tools were standalone applications that resided on desktop computers. Today, there are hosted, online options; specific tools for WYSIWYG software localization; and tools specifically oriented to the complex task of database localization. They are also offered as integrated components of content management applications and process management systems. These tools are sophisticated, and implementation is not out of the box or inexpensive. If you have a large volume of rapidly updating content, one of these tools might be for you.

Another category of tools that you will want to research and closely consider is CMS. Web CMS has been widely used by large and small organizations for many years. Many options are on the market, from “enterprise” systems all the way through to open-source do-it-yourself applications. Search online for *website CMS*, and you’ll find an incredible variety.



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Document CMS has also been around for a while, although adoption has been less widespread — at least until now. In the past, some barriers to adopting documentation CMS have been cost and complexity. From our point of view, the early adopters in this field tended to be large technology and industrial companies that had both the need to manage huge amounts of multilingual content and the financial and organizational wherewithal to support large-scale custom implementations.

While single-source publishing has been popular and relatively widespread for several years, true object-oriented CMS publishing takes the concept one step further. An object-oriented CMS stores your source content as chunks and separates it from the design and look/feel elements that are used in published output. Localization costs are often significantly reduced because translation and editing are performed at a more granular level and no longer must you send an entire manual out to translation with every revision.

Most significantly, the hurdles to purchasing and implementing a documentation CMS have lowered significantly in the past few years to the point where many small and medium-sized organizations can come up with the funding and technical support required to use these powerful tools. In our experience, compared to a traditional print and online help localization program, the cost savings that result from adopting a CMS almost always justify the effort and cost.

The integration and automation of localization tools and process are only beginning. The next frontier seems likely to include the blending of CAT with MT and CMS. There is currently a race in the industry to create end-to-end workflows that start with content creation and end with delivery of local-language content to the end-user. These products are still a bit on the early-adopter end of the technology spectrum, but they are not too far away from useful application.

### Objectives and goals

In terms of short-term goals and long-term objectives, you will want to have your localization delivered to the user when he or she needs it, in a format that is easy to read and search, and translated in a way that accurately represents the source content it was derived from. If you can meet these goals on a project-to-project basis,

you then have a platform from which to build a successful localization program.

As previously described, the localization process is influenced by the type of source, the contributors and the media used for publishing and distribution. It is also dictated by the amount of re-use potential within your content and the number of publishing cycles that are expected in the future.

When the time comes to design a localization plan, evaluate tools; talk with vendors; and consider all of these elements as you define your scope. Today is a great time to start localization or perhaps to re-tool your current process. The future is bright, and the marketplace has a fantastic variety of solutions to fit your needs. **G**

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# MOVING BEYOND THE *Ad Hoc* RACY OF LOCALIZATION

DONALD A. DePALMA

**M**any different phenomena can drive companies to localize a product or website. For example, your CEO reads an article about huge opportunities in China and adds “going global” to his or her list of top three goals for the next fiscal year. Or a rival creates German- and Spanish-language commerce websites to sell its wares. National regulations mandate that you localize your products or lose the right to sell in Europe. A regional distributor demands marketing materials in the local language. Loyal customers begin to buy a local supplier’s products instead of the ones they used to get from you. Web page views from Europe draw even with your domestic traffic.

In an ideal world, any of these incidents might cause your company to add localization as a budgetary line item, create a special team to scope out the problem and then undertake a full-blown international initiative. Much more likely, these events will create scattered pockets of awareness around the company, perhaps incite someone to start building a business case for localizing a product or adding a language to your website, or start a small-scale, perhaps one- or two-person *ad hoc* project to fix whatever problem causes the most pain.

Localization is the process of adapting websites, software, documentation and products themselves to satisfy the needs and requirements of international markets or cultural nuances. It is a black art to some companies, a well-defined process to others and a continuing journey for most. Common Sense Advisory has a mantra with our consulting clients — make new mistakes! We think it’s very important that they make new mistakes rather than duplicate the same old mistakes. Because many organizations will pass the same milestones on their way to localizing their wares or their communication channels, in 2006 we decided that it was high time to document those landmarks.

## Capability Maturity Model identifies and formalizes best practices

A capability maturity model (CMM), a reference model of accepted practices in

a given discipline, is used to improve and appraise a firm’s ability to perform the functions required in that arena. The CMM is the degree to which processes and activities are executed following “good practice” principles and are defined, managed and repeatable. CMMs vary by domain — for example, a CMM for software engineering differs from one for business intelligence — and by how they define maturity (discrete phases or continuous process improvement).

A CMM does not provide a detailed cookbook on how to create an effective organization or which technology makes the most sense for your firm. Rather, it describes behaviors or best practices demonstrated by successful projects. While CMM compliance will not guarantee success, it does increase the likelihood of succeeding by helping planners understand what others have experienced and learned before them.

## The Localization Maturity Model

From many discussions and interviews with companies that have localized products, documents and websites, we have found that most pass through four stages of maturity before reaching the ideal localization process (Figure 1). Companies will proceed through these localization maturity model (LMM) levels at different speeds, often finding themselves more advanced in one aspect than in others. Therefore, an organization may be Level 3 when it comes to technology deployment, but Level 2 in terms of process isolation. We find such disparities all the time.

For each level of the LMM, we outline activities that companies will encounter in three key process areas:

- **People.** The need for human resources begins inside the company and extends out to a broad ecosystem of language service providers (LSPs), consultants and technology vendors. Besides questions about who does the work, we discuss questions of training, organizational knowledge and global governance.

- **Process.** Localization is not a discrete operation, but rather an interlocking series

of processes that crosses organizational lines. How content gets managed for multiple markets, what interactions with customers involve, how money gets paid, all flow into localization’s assembly of process, project, resource, financial, technology, and workflow management tasks and solutions.

- **Technology.** Specialized tools for translation and localization engineering complement content management, database and customer relationship management technology. Translation management systems integrate with corporate systems of record to support websites, documentation and marketing programs.

As we discuss these key process areas, we outline what companies at each stage of localization evolution should do and what their LSPs can do to help.

## Level 1: Reactive localization – the *ad hoc* racy of international support

An *ad hoc* response to business demands for international or domestic multicultural support characterizes this first phase of localization. There are few defined processes — and lots of individual heroics. Small companies, websites at any size firm, and self-contained business units of larger organizations typically find themselves at this level as they first begin responding to international market demands.

In this early phase of realization, companies typically delegate the work to international business units, outsource IT work to third parties, or pick someone from an internal line-up or hire a new employee to do the work. This new localization manager can expect little guidance from management or others. Processes have yet to be discovered, and the technology to support localization efforts is often missing in action.

## Level 2: Repeatable localization – the discovery phase

Most companies that operate internationally will find themselves in this second level of localization maturity, largely driven by increasing demands to globalize their websites, products, user manuals and



marketing materials. In this next phase, companies may have done some product development, marketing and website work for global markets, but they don't have a dedicated budget, named team or organizational visibility.

Staff members will dig into their past experiences and current reality. Their research unearths repeating processes, systematic flaws and best practices. They will establish basic project management patterns and begin to track cost, schedule and multilingual functionality. They will find much redundancy due to being organized hierarchically rather than as a service shared across their enterprise. Finally, firms that reach this level will observe that they are not alone. An ecosystem of suppliers, conferences and research exists to help guide their journey.



Figure 1: Phases of Localization Maturity Model.

Source: Common Sense Advisory, Inc.

Companies establish basic project management processes to track cost, schedule and functionality. External translation resources and engineering resources support the effort. Firms of any size that have undertaken some international product development, marketing and website globalization fall into this category as they begin realizing how much work is involved in localization. In this phase, inefficient automation is the rule rather than the exception. "Leverage" enters the vocabulary, but translation memory (TM) is under-used and badly managed.

### Level 3: Managed localization – stabilizing and formalizing process

This third stage of the LMM constitutes a major leap from the chaos of the first level and the active discovery of the second. During this phase, practitioners and observers recognize that many of the localization issues that they encounter appear in different shapes across the company. Managers observe language and culture on their budget and planning radar. Translation of words and adaptation of code underpin the

globalization of websites, technical publications, product development, marketing and sales systems.

This realization drives them toward documenting, standardizing, integrating and even centralizing their localization projects. Ideally, by this time some individual departments with an express need for international support — technical publications and software development — have already agreed upon and implemented a reproducible process for localizing their output. Other groups begin to follow their lead for the web, customer service and marketing.

Recognition of common problems drives efforts to document, standardize, integrate and sometimes centralize localization projects across the firm. Ideally, all projects use an approved version of a corporate-standard process for localization. Larger firms — especially high-tech companies in software and hardware, consumer electronics, and automotive manufacturers — have generally reached this level.

### Level 4: Optimized localization – automating processes and practices

By this time, executives, project managers, developers and marketers remember to factor localization into any project just as they do with any other business or development issue. Companies now work toward optimizing how things work with goals of pumping up efficiency, increasing the usability of their products and websites, improving predictability and consistency, and moving more quickly into new markets.

Level-4 firms have educated IT, customer relations management and enterprise resource planning staff in the art and science of timely localization. Meanwhile, early advocates of globalization such as technical publications and software engineering continue to push better quality source and process automation. The swelling volume of

content and applications mandates more investment in quality management.

At this stage companies take a more scientific approach, collecting detailed process, quality and efficiency metrics. They begin requiring use of localization-centric and language-centric tools both by their internal development groups and by their sourcing partners. Companies with highly

evolved internal processes, a modern software infrastructure, a content management architecture, and experience in distributed authoring and product development will aim for this next level of localization maturity. In most cases, they opt for a hybrid organizational model in which they share centralized technology, process and much corporate content, but provide for a local voice and some local control.

As companies become aware of the need to publish content in many different forms, many will reevaluate how they manage information domestically and internationally. Content wranglers develop a theory of content transformation. They look to the original source and factor in adaptations required for different platforms and operations. They complement these quotidian operations with transformations required for different market demographics, linguistic communities and countries. Each conversion to meet this transformational imperative adds complexity, cost, time, potential errors and brand dilution.

Consumers' demand for more words in their own languages drives the localization team to experiment with machine translation (MT) at the corporate website. Their goal is to give visitors the choice of reading less frequently traveled parts of the site in their own, albeit lower-quality, language. Candidates for MT include web-based

self-help, legacy product information and deep reference material.

## Level 5: Transparent localization – by now it's everyone's job

Companies in the final phase of the LMM have internalized the concept of localization so that it is a natural part of their code and content life cycles, business planning, quality management programs and general outlook. They undertake a program of continuous process improvement in which they insert the globalization “gene” into every product, customer interaction and employee. Some high-tech companies — Microsoft, Oracle and Symantec among them — aspire to this stage of awareness and practice, but we find few firms at this level of localization maturity. Of course, we regularly speak with LSPs and software vendors who paint a picture of this nirvana to their prospects and clients.


Now that localization is “bred in the bone,” they consider localization to be another business practice, like hiring, expense reporting

or revenue recognition — something that is a matter of course for any function within the organization. Early-in-the-process internationalization, structured localization and just-in-time translation underpin mainstream processes for product, website and internal applications. Importantly, everybody in the company recognizes that his or her job depends on global markets and on customers who speak other languages. Each business unit includes international websites, products, marketing materials, documentation and customer service in its project plans. They regularly review process variation, performance issues, and changing economic conditions as they strive to meet business objectives.

As with any fundamental business practice, reversals are not out of the question. Fundamental business changes such as a new CEO, a merger or acquisition, or a decision to shut down unprofitable country units and stop language support still have the potential to derail even the best localization efforts.

## What next?

Is the practice of localization scientific enough to define it so thoroughly? Probably not, but we do believe that there is enough commonality in practice to document the mistakes, learnings and expertise of those who have preceded them. So, we are extending our research to include more details, such as costs, benefits, checklists, common errors and an interactive assessment. This work is currently under way. We are also working on the LMM model for LSPs.

In the final analysis, a maturity model provides a baseline for future analysis and metrics. The LMM helps in assessing your status and forward momentum — or understanding where your clients are and what they are thinking. This knowledge will reduce organizational risk and, we hope, avoid costly failures. By defining measures to chart your progress, you will undertake a journey toward managed process improvement rather than the riskier “big bang” of business process re-engineering. 

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# TECHNICAL CHALLENGES AND LOCALIZATION TOOLS

JANAINA WITTNER AND DANIEL GOLDSCHMIDT

With more than 200 countries and over six billion people speaking different languages, using different currencies and applying country-specific business practices, being a global player is no easy matter. In fact, most global companies concentrate on a few poles around the world. The Localization Industry Standards Association's (LISA) Global Business Practices Report, published in 2006, revealed that target languages chosen by organizations break down as follows: French 56%, Spanish 53%, German 50%, Japanese 29%, Simplified Chinese 27%, Italian 21% and all other languages less than 7%. However, a comment by former German Chancellor Willy Brandt still holds true: "If I'm selling to you, I speak your language. If I'm buying, *dann müssen Sie Deutsch sprechen* [then you must speak German]."

If a company is to become a global player, its product lines must be designed in such a way that they can be sold anywhere in the world with minimum change. Let's take McDonald's, which is present in more than 100 countries, as an icon of globalization. McDonald's has started to "localize" its menus. In Hong Kong, burgers are served with two patties of glutinous rice instead of buns. In Japan, you will find shrimp burgers and green-tea-flavored milkshakes. In India, instead of beef you will find lamb, chicken or vegetarian burgers.

For information technology (IT) products to be easily changed, internationalization guidelines must be followed. Products are designed and/or coded to support national standards and conventions. Consequently, only internationalized products will be cost effective to localize. Localizing a product means not only translating it, but also giving it a "local flavor" by making the content meaningful and acceptable on a local level. End users should be under the impression that the product was designed by a native of their country and not have the feeling that it has been badly adapted to their local needs.

Localization challenges tie in with linguistics and cultural differences. In this

article we will give a few examples of these challenges to illustrate the most common issues. Another challenge inherent in localization is the choice of tools used to manage the localization cycle effectively and efficiently. While localization is possible without these tools, it would mean a great deal of wasted time and would probably result in poor quality.

## Technical challenges linked to linguistics

- **Text string expansion.** It is not uncommon for short texts, such as the titles of software commands, to be three times as long in German as they are in English, while the Chinese equivalent will be much shorter. For example, the English word *redo* translated to German is *wiederherstellen*, up from four characters to 16, an expansion of 400%.

- **Character sets and encodings.** Character encoding schemes are limited in size and do not always cover all the characters of a specific language. For instance, encodings belonging to the ISO-8859 family are represented by one byte and are thus limited to 256 characters. In this family, Latin 1 covers Western European languages with characters such as ©, «, ¿ and ã, while Latin 2 covers Central and Eastern European languages with characters such as š, ů, ř and č. Latin 8 covers Hebrew characters.

For Far East languages, other complicated character encoding schemes are defined, such as S-JIS (Microsoft for Japanese) and GB 18030 (Simplified Chinese). The latest Unicode standard (5.0) covers almost 100,000 characters and most scripts (writing systems) in use today. Multilanguage software should be adapted to Unicode to support as many languages as possible. The necessary adaptation process is by no means trivial because it is necessary not only for the software but also for all related legacy systems that store data.

- **Bidirectional text and vertical character display.** In Arabic and Hebrew, the text is written from right to left, but references in Latin characters and numbers remain from left to right. Third-party applications necessary during the localization cycle may

not support this, thus resulting in high conversion costs. Similar challenges are faced for languages such as Chinese that can be written vertically.

- **Keyboard character layout.** Keyboard layouts vary from one country to the next because they have been customized to the most-used characters and symbols in a given language. For some languages, there are various ways in which to input the language (Chinese, Japanese and even English). Keyboard input may not be appropriate if the product is not internationalized and does not recognize other keyboards.

- **Fonts.** Fonts are generally limited to a set of scripts. So, the appropriate set of fonts should be chosen and used during runtime and desktop publishing (DTP). This can cause visual problems, especially when multiple languages are represented on the same page.

- **Keyboard shortcuts.** These will also have to be localized to make sense for a particular language. *[Ctrl]O* makes sense in English for *Open*, but not for its Portuguese equivalent *Abrir*.

- **Alphabetical sorting order.** Sorting rules for extended characters differ from language to language. In Polish, extended characters are collated after their non-extended counterparts: A, Ą, B, C, Ć, D, E, Ę and so on, while in Swedish, they are placed at the end — X, Y, Z, Å, Ä, Ö. In Hungarian, both extended characters and consonants are written with single, double or triple characters. Thus, the alphabetic order thus looks something like A, Á, B, C, CS, D, DZ, DZS, E, É, F and so on. It goes without saying that when sorting lists of items in the graphical user interface (GUI) or in your documentation's indexes, you need to be fully concentrated and have all the rules at hand.

- **Text and audio concatenation or placeholders.** Concatenation is when a sentence is composed of different segments of text. For instance: *do not, click on and print* could be composed as *click on print* or *do not click on print*. Well-intentioned programmers use concatenation to save space. While it makes perfect sense in

one's native language, it may not work for other languages that are structured differently. German, for instance, requires the verb to be at the end of the sentence. If composed in the same way, a German sentence will thus be grammatically incorrect: *Nicht klicken auf Drucken* instead of *Klicken Sie nicht auf Drucken*. These localization issues require re-engineering and are time consuming.

Similar issues occur with placeholders. If we take %d red, flag and flags where %d is the placeholder for the number, it will be impossible to obtain a correct sentence in Polish because the word red changes based on both the numbers and the gender. In Figure 1, we have selected the Polish word for flag (flaga — female), for armchair (fotel — male) and for lake (jezioro — neutral).

- **Linguistic style.** Writing styles invariably differ from one translator to another, even though all may be correct. Maintaining consistency is, therefore, a major localization concern, especially when more than one translator is working on the translation. Using linguistic style guides, translation memories (TMs) and a single reviewer can help maximize consistency.

- **Abbreviations.** Abbreviations are often used to save space in English documentation, but they don't always translate into other languages. Worse, an abbreviation may sound like an offensive word.

- **Terminology.** Terminology is related to a specific domain (finance, IT, travel and so on), but choices will depend on both branding and overall corporate strategies. Content created in different business units will have different formats. It can represent the actual software, but also documentation, online help, training material, the company website, newsletters, contracts and so on. Keeping terminology consistent in all these areas is not possible without a centralized system and strict processes. Defining terminology when creating the content is the best way to ensure good quality translation. The systems to use will be described later in this article.

## Technical challenges linked to cultural differences

Numeric formats are not universal. For example, 10,000 means the number 10 for

English	Polish (female gender)	Polish (male gender)	Polish (neutral gender)
%d red flag	%d czerwonej flagi	Czerwonego fotela	Czerwonego jeziora
1 red flag	1 czerwona flaga	1 czerwony fotel	1 czerwone jezioro
2, 3, 4 red flags	2, 3, 4 czerwone flagi	2, 3, 4 czerwone fotele	2, 3, 4 czerwone jeziora
5-20 red flags	5-20 czerwonych flag	5-20 czerwonych foteli	5-20 czerwonych jezior

Figure 1: Variations of red in Polish.

a French person, while for an American it means ten thousand; 100,000.99 does not mean anything in France, where decimals are separated by a comma (,) and not a dot (.) as in the United States. In France, this number should be written 100 000,99.

**Currency.** In Europe, the symbol associated with the currency is placed after the numbers and not before. For example, twenty-five thousand euro (€25,000.00) is written 25 000,00 €. Currency must be localized to its local equivalent to be meaningful for the end user.

**Payment methods.** E-commerce solutions must account for local payment preferences. In Germany, people tend to prefer wire transfer payments to online Visa payments. In

a country code or an area code has to be included for it to work.

**Name formats.** Hungarians expect to see their family name first and their first name second. A Hungarian called Zoltan (first name) Kiss (family name) would thus expect to see his name displayed as Kiss Zoltan. In Germany, The Netherlands or the United States, however, the first name is displayed first: Christian Meier.

**Calendars.** The Gregorian calendar is the most widely used calendar in the world, but references to the New Year will not have the same meaning if the person has the Chinese or Islamic calendars in mind.

**Dates.** The date 03/05/01 does not have the same meaning for all of us. It could be referring to the third day of May 2001 or the fifth day of March 2001 or the first day of May 2003 — and does the 01 refer to 2001 in the first two cases? In the United States, the date format is mm/dd/yy, whereas in Europe, dd/mm/yy tends to be used. In Sweden, the year is placed at the start.

**Time zone.** Greenwich Mean Time and Coordinated Universal Time are international standards that are widely used. However, people in the United States and Canada tend to refer to Eastern Time, Eastern Standard Time and so on. In France or Spain, people like to use Central European Time or Eastern European Time.

**Time format.** Use of a.m. and p.m. instead of a 24-hour clock has to be localized for Europe. Only a minority of Europeans will understand 8 p.m.

**Metric system.** Only three countries have not officially adopted the metric system, and among them is the United States. Also, when speaking to British or Irish citizens, you will make far more sense if you talk about miles and pounds rather than kilometers and kilograms.

**Colors.** Choices of colors seemingly without consequence used for a background or

Color	China – Asia	USA – Europe
Red	Celebration, Luck, Marriage	Stop, Danger
White	Mourning, Death	Purity, Marriage
Green	Infidelity	Go, Safety, Environment
Blue	Immortality	
Yellow	Sacred, Imperial	Caution, Joy, Happiness
Black		Mourning, Death

Figure 2: Colors send different messages in different regions.

Yahoo finance website	Market up	Market down
China - <a href="http://cn.finance.yahoo.com/">http://cn.finance.yahoo.com/</a>	Red ▲	Green ▼
Korea - <a href="http://kr.finance.yahoo.com/">http://kr.finance.yahoo.com/</a>	Red ▲	Blue ▼
France - <a href="http://fr.finance.yahoo.com/">http://fr.finance.yahoo.com/</a>	Green ▲	Red ▼

Figure 3: The Yahoo! finance website colors for arrows indicating direction of market trends differ according to locale.

Slovakia, payments by check do not exist. In other countries, people may simply not have credit cards.

**Local address and telephone formats.** Local address input forms have to be adapted to the country's address format. The same goes for phone numbers, either for input or when published in the content. Locals should understand address forms straight away without having to guess if



graphic can send different messages depending on the target region. If the intended effect given does not correspond to that of the original product, it will require localization (Figure 2).

Concerning illustrations, consider how Yahoo! localized its finance website (Figure 3). The colors for numbers and/or arrows that indicate whether the market trend is up or down differ according to locale.

**Graphics or icons.** Graphics may indicate events or actions particular to a specific country, but will have no significance for others. Icons showing images of animals or body parts such as the eyes, hands or feet may be offensive in some countries.

**Geopolitical issues.** When illustrating a map of China or India, should the disputed border with Tibet be included or not? Given that the Kuril Islands are under Russian administration, but that the Japanese refer to them as the Northern Territories, how can this be represented? Can Ireland be illustrated as the whole isle, or

should it stop at the northern border line? Is Jerusalem to be represented as the capital of Israel? Not all countries recognize it as such.

These illustrations show that the translation process, which entails communicating the meaning of words or sentences, only represents a subset of what we refer to as localization. Technical issues are to be solved. Processes and procedures are to be put in place to attain the ultimate objective of localization, namely, having the same functionalities across different language editions of the same product.

The localization process is far from straightforward. Terminology must be correct and consistent. Source files have different formats, and translations should ideally be re-used from one project to another and from one version to another. A great many tasks and people are necessary to accomplish all of this. Various tools are available on the market to ease the localization cycle and enhance quality.

These tools range from terminology management systems to pure TM tools, localization tools or comprehensive workflow management systems. Selecting the appropriate tools and using them properly are obviously all-important.

## Terminology management systems

As mentioned earlier, managing terminology is crucial to ensure localization quality. Terminology management systems should be used to maximize the consistency and relevance of terms used in both the source authoring and localization stages. These systems help manage lists of terms and give information such as context, explanations, definitions, classifications and graphics, where applicable. This information may be important for the translation of these terms and for their selection during the translation cycle.

Terminology management systems can be used as components of TM and localization tools or as standalone solutions that plug into them during the translation phase.

Building a terminology management database is no easy task. First, all existing data and assets have to be analyzed to extract the existing terms. Although this task can be done using tools, it will inevitably entail a great deal of human work. Once the terms have been validated — preferably by the end customer — they are translated to the target languages, reviewed and ready to use.

Combined with TM tools, the terminology management system helps translators in their work by providing them with a term's translations whenever required. Although many term management systems are available, most of them are complex and must be customized. This alone explains why spreadsheets are often used instead.

## TMs

The basic concept inherent in TMs is simple: once a text has been translated, it is “memorized” in a database for possible use in future translations, thereby avoiding redundant work. This is achieved by segmenting the source text into “translation units” (phrase, paragraph and so on) and saving these units in the TM database along with their translations for future use. New segments for translation are subsequently matched against the existing segments in the TM database. If there is a match, the existing translations are used. The words in the matched segments are counted as “repeated words.”

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There are several types of matches:

**Exact match** (also called 100% match): the current translation unit (source language) exactly matches the one stored in the TM.

**Fuzzy match:** when the match between the current translation unit and the one stored in the TM is not exact, it is said to be "fuzzy." Here, the existing translation can be used as a reference for the new translation.

**ICE match** (In Context Exact match): not only does the current translation have an exact match, the surrounding translation units have a match, too (location within the paragraph, for example).

Figures show that in a given product line's documentation, the repetition rate of segments can reach 30%. For updates to the same product, this repetition rate can be as high as 80%.

Benefits of such tools are considerable:

**Translation consistency** and, therefore, **quality:** Once a segment is translated, the same translation will be used — when possible — across the entire project (documentation, software, online help and so on). Consistency is additionally ensured for future releases of the product.

**Speed:** Only what has to be translated is translated.

**Cost:** Payment does not go beyond what is translated or reviewed.

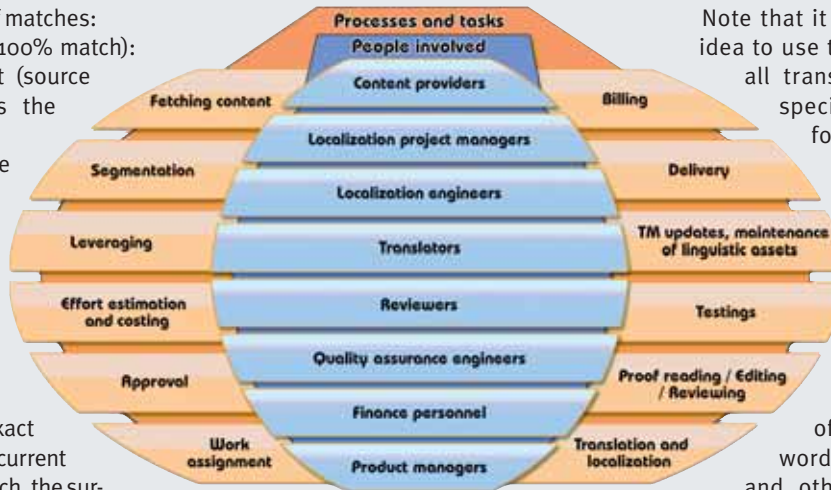


Figure 4: The major steps in a conventional localization process.

TMs can also be used to analyze workloads involved in new projects and give an accurate word count (total word, words to be translated, ICE match words, exact match words, fuzzy match words). Based on these figures, costs can be estimated in terms of the translation itself, the effort required and the timeframe.

While TMs are useful for localization work, considerable effort is needed to maintain them. Once a translation has been approved by reviewers, the TM has to be updated with the latest translations, then cleaned up (this is an automatic process that removes bad translations, bad segmentations and other quality-related issues).

Note that it is not necessarily a good idea to use the same TM database for all translated segments, even if specific attributes are defined for each. It usually makes more sense to use a different TM per business unit or product line.

## Localization tools

Localizing software is not the same as localizing documents. The strings to translate are often short (even single words), the context is unclear, and other components must be localized such as text messages (strings table); shortcut keys; accelerator keys; dialog structure (size, location and other properties); menus; bitmaps; and icons.

The all-too-common solution of simply extracting the GUI strings into a file (text or spreadsheet) leads to major problems and affects the overall quality. Localization tools should be used in order to overcome these problems. Localization tools use dedicated parsers to parse the components of the application to be localized. Relevant resources are loaded into a common database, and non-localizable resources are locked or hidden. A pseudo-translation can be done to confirm that all the extended characters are correctly displayed before preparing the translation kit.

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## LOCALIZATION Guide: GETTING STARTED

During the actual translation cycle, the information is presented to the user (localization project managers, translators and reviewers) in WYSIWYG format. Translation and review work can thus be done in context, and the impact of long or out-of-context translations can be seen and fixed immediately by adapting the translation or the dimensions of the GUI component. Once localized, the target resources are reloaded in the localization tool, and the target files are generated for delivery to the publisher.

The main drawback with localization tools is that they cannot successfully handle dynamic content. This makes them unsuited for localizing enterprise and web applications. A significant amount of research work is under way in this area.

### Workflow systems

The localization process involves numerous steps and functions, both for the publisher and the multilingual vendor. As illustrated in Figure 4, the major steps in a conventional localization process are:

- fetching content to be localized
- preparing the content (text segmentation, resource extraction and so on)
- leveraging content from existing TMs
- effort estimation, costing
- management approval
- work assignment
- translation and localization
- proofreading/editing/reviewing
- testing, if applicable
- TM updates, maintenance of linguistic assets

- delivery
- billing

The number of roles involved is no less significant:

- content providers (editors, technical writers, R&D teams and so on)
- localization project managers (on the publisher and vendor sides)
- localization engineers (on the publisher or vendor side)
- product managers
- translators (in-house, freelance, single language vendor [SLV], sub-contractors)
- reviewers (in-house, freelance, SLV, sub-contractors)
- finance personnel
- quality assurance engineers (on the publisher and vendor sides)

Workflow management systems are used to keep track of the process and manage the distributed tasks. There are two kinds of workflow systems: pure

management systems and automation systems.

Pure management systems help the localization project manager gather all the information related to the project and process, thereby giving visibility over the project's status. Sophisticated tools will issue alerts in case the project's status falls behind schedule (late delivery and so on).

Automation workflow systems connect to the various systems used in the localization process to fetch the necessary data and push the work down the stream. For example,

- The tools used are connected to the content management system to fetch the content to be translated and deliver the localized content.

- TM systems are used to automate the leveraging, word count and effort/cost estimates (using information from finance systems).


- Localization tools are used to automatically extract all the resources and prepare localization kits to be sent to localization vendors.

- Localization tools are used to automatically build the application resource in the target languages to be shipped to the publisher.

- E-mail systems are used to dispatch localization kits to localization vendors, translators and reviewers and gather the localized work.

- Reports systems are used to give full visibility over the project's status.

This type of tool, a globalization management system, exists as a standalone solution or as part of a suite of localization solutions.

Now that you have gained greater insight into the issues involved in localization and the tools needed to successfully manage a multilingual localization project, you must bear in mind that the localization industry is fast changing. Clearly, even more automation is required in the localization process, and a great deal of effort is being made in this respect. For example, machine translation (MT) systems represent an exciting area of research for many around the world. Although considerable progress has been made in recent years, the resulting quality still lags behind that of a human translation. In order to be effective, this technology requires a very large corpus of multilingual content (up to one million words), but the future is open. In fact, MT is set to play a very important role if we are to meet the increasing desire to go global and thus to localize content. 



**A**re you trying to migrate from being a local business to a successful global enterprise? To compete in the global economy, language and communication channels are key to presenting and selling products and services globally.

Feeling challenged? These steps will provide the foundation for improving the baseline localization and translation process. They will not only help address the growing demands of the global economy, but they will also give your company a healthy dose of due diligence, tighter control and better performance — all of which will contribute to improving your business and business processes.

#### A single integrated, automated process

Internationalization, localization and translation combine the written word with technology and people from many different cultures. This is an immensely exciting combination, but it is also a complex one with many potential conflicts. The challenge is to maintain control over these conflicting entities without crowding their creativity. At the heart of a successful globalization project is one integrated and ideally automated process that is driven by innovative technology.

For a software product where the user interface and help or documentation are to be localized into 25 languages, one project manager (PM) will probably be managing 125 to 150 people working in 25 different countries and several different time zones. These would include client validators, subject matter experts (SMEs), translators, reviewers, desktop publishing (DTP) staff, engineers, quality assurance (QA) testers, terminologists and so on. One PM will most probably have several of these projects going on at the same time. This is only possible if a highly experienced team is working on the project with great tools, good communication channels and a superb process in place.

Any localization company worth working with has to spend much of its time fine-tuning this process and developing its people, tools and technologies to improve it. For a localization company, people, process, technology and innovation are vital in order to succeed and grow.

The optimum process will link the entire globalization and development team together. The tools used must talk to each other, to content management systems

(CMS) for access to localized files, to servers for QA testing and repair, and to the web for managing foreign-language content. Everyone needs to share the same linguistic assets.

By establishing one process for the entire team to follow and by giving everyone access to the workflow online, the client can retain control over the localization process and ensure that every detail is included. Everyone working on the project can follow the same workflow steps and see the same status reports, financial information, queries, terminology, style guides, project instructions, translation memory (TM) management, validation approvals, TM savings and so on.

Many clients complain that they cannot get their overseas offices to cooperate, but quite often it is because the client does not understand the local needs and does not share information about or give support to those needs. By giving local team members easy access to linguistic assets, forecasting and planning information, online query logs, status reports and so on, the client gets the local office buy-in, cooperation and innovative input. As a result, products can be approved far more quickly.

Because of this common process, the best SMEs can be selected for global projects. They can be provided with the tools, technology and knowledge needed to achieve excellence. By using this centralized process and technology, SMEs located worldwide can bring individual technical, cultural, linguistic, creative and managerial abilities and expertise to the table. Open architecture respects, harnesses and shares individual expertise and local country know-how. Once this process has been defined, it should be automated for truly best results.

#### Step 1. Quality at the source

Quality at the source is the essential starting point. The final localized and translated product can only be as good as the source material. Thorough preparation for selling into overseas markets is critical, and myriad companies can provide excellent advice.

## FIVE STEPS FROM LOCAL TO GLOBAL

GINETTE LYTTON COBBOLD & RENATO PONTES

Well-written source material that has been written with localization in mind prepares a good foundation for a successful localization project. If a technical manual or help text is ambiguously written with omissions and is full of technical and stylistic inconsistencies, then the translated versions will suffer, and any TMs that are created will not render maximum re-use of existing translations. The solution here is to create an authoring style guide, authoring memory tools, terminology or, even better, to invest in a CMS.

For example, a health care vendor that had acquired several companies and used many different freelance authors without ever building a CMS or technical writing style guides wasted many thousands of dollars rewriting and translating the same texts over and over again. Eventually, there were 25 slightly different versions of the same copyright sections written in English, and these 25 texts had all been translated into 35 languages several times over. A lot of time and money wasted!

How a company presents itself and its products overseas varies a great deal from country to country. Europeans do not like the short telegraphic style of writing of the United States or the United Kingdom. One sentence in Spain often takes up an entire paragraph. Web design also varies. In the United Kingdom, users like interactive, factual content; the Italians and the Spanish prefer much more movement and design; and so on.

Software must be reviewed by an internationalization company or by in-country engineering teams. Commas and full stops (periods or decimal points) in numbers are used differently in the United States and the United Kingdom than in the rest of Europe. In Europe, dates must be date/month/year, different from the US month/date/year format. It is important to ensure that software is double-byte enabled if it is to be translated into Chinese or Japanese character sets. How products are programmed can cause many problems when extracting text for translation and protecting the code. Repeated compiling and testing cycles that are caused by translation errors that came about because the product was not properly prepared can

delay product launches by months. Translated texts run out much longer than English – in French, Italian, German, and Spanish by approximately 25% — so dialog boxes must allow for this expansion.

Who is going to sell the products in the target markets — overseas subsidiaries, distributors, or one European or Asian headquarters that covers various countries? They will need to finally approve any material that is localized for their markets and must be consulted on what they need, what their market wants, how they are going to sell the product and so on. They should be made part of the localization cycle from beginning to end.

### Step 2. The localization budget

The questions to be answered before building a budget are many. What markets and languages? How much should be localized? How often? How complex is the product? How often will it need updates? How many products are involved? Should the company single-source help and documentation? The answers will help shape the scope of the localization. The resource choices include in-house personnel, distributors or local offices, single language vendors (SLV) or multi-language vendors (MLV).

If the client has decided to translate into several languages, the budget should go beyond a single project and should be considered as an upfront investment in product internationalization and preparation of linguistic assets so that an efficient process including tools can be amortized over a period of one to three years.

It is important to receive ongoing business intelligence reports that show what is being spent per language, per project, per month, per service and so on. It is also important to receive business intelligence on what return on investment (ROI) the client is getting on the linguistic assets and technology investments. If the client is using an MLV with a translation management system, it should be simple to obtain this information automatically as part of the process.

Having tested the market and having decided to make a commitment to certain markets and translate and update products regularly, it is more cost effective to establish a master-level agreement or at least a list of standard rates for agreed chargeable workflow steps. This can be done with one or more language service providers (LSP), but having a master agreement in place will guarantee commitment, professionalism and consistently better-quality work from

each of them. Going out to quote on every project to many LSPs delays project starts and the quality tends to suffer.

Much preparation is required to produce quality work — obtaining product or service knowledge or training, terminology preparation, stylistic briefings for presales material, brand information, training in specific tools or technologies and so on. Project reports, reviews and post-mortem meetings should take place at the end of projects to see how the work went and what can be improved for the next version. The LSP needs to understand the client's company and preferences, and this takes an investment in time and money. In this way the client gets the LSP to achieve the required quality and does not have to spend so much time reviewing and setting up time after time.

Quality is not personal in business, though people can be motivated and supported to achieve standards of excellence that go far beyond the call of duty. They can work long hours, carry out special research, show huge commitments of time and care, and will generally respond well to being appreciated.

A great quality system and automated process will help them to achieve their potential. The business rules must be clear to everyone, however, since people make mistakes despite their skills and expertise. For best results, the client and the LSP need to work together to define and set out the quality standards for every project and agree to the metrics that will be used to track and measure that quality.

Centralized linguistic assets with tools to control adherence and well-managed TMs that are accessible to all project stakeholders are also metrics for controlling quality. These tools are in place not only for the LSP to attain quality, but also for the client to check quality. These are precious assets that should be shared, managed and maintained by the client as well as the LSP. Projects would be much better if everyone followed the same rules.

### Step 3. Forecasting and planning

Once the client has started on the localization path, it is essential that internationalization, localization and translation become part of the product development cycle. There is no point waiting until the product is almost ready to launch in the source language and the help and documentation are all written before starting to plan for globalization. This will delay global project launches by months, and the company will lose its edge

over the competition that have managed to launch products in ten countries all at the same time because of good planning and forecasting.

It is important to share yearly forecasts and planning information and to update regularly as product development slips or marketing plans change. By sharing product knowledge and planning with LSPs and the client's validators, the client saves months of time and cost. Plan the localization and validation into the product development cycle. Everyone knows that plans change, but many problems can be avoided. Best resources and speedy turnaround can be guaranteed through good planning.

### Step 4. Building a worldwide team

Having clarified the localization requirements and planned a globalization strategy with the rest of the internal team, the client is in a much stronger position to select the right LSP to meet his or her specific needs.

The most successful selection processes are those that focus on what the client really needs. Very broad selection processes that involve eight or more LSPs are a waste of time and money. It is better for the client to spend more time analyzing needs and setting selection criteria rather than generating a big spray of requests and huge information-gathering exercises that take teams of people months to wade through.

Decide on the selection steps and set dates for each. The first step should be a request for information (RFI), which should address the client's main concerns without excessive detail. The client should be able to rule out companies that do not fulfill the criteria early on without lengthy questionnaires. The RFI should also have some predetermined method for comparing and measuring results.

Next is the request for quotation. Again, the files sent for evaluation should not be very long. There should be a cross section of the type of work that the client wants translated and sample quotes for each type. The client should decide on the services required and set the chargeable items up front so that apples can be compared with apples. Otherwise, it is very difficult to compare costs.

Short sample translations are a good idea, not just to see the quality of the translation itself, but more to treat it as a pilot project to understand how the LSP manages the project and to see what questions they ask and what value added

they put into the sample. The test is to see how they work and whether they meet the clearly thought out selection criteria.

Short-listed companies should attend a meeting at the client's office to make a presentation and answer questions. Finally, an audit should be made of the finalist LSPs to check their quality systems and IT infrastructure, meet key managers, identify the project team and so on.

## Step 5. Tools and workflow systems

A number of tools can help to make the localization process faster and of consistent quality. Not all of these are appropriate for every project, but understanding their application can be useful. For example, in the mid-1990s the localization business radically changed its approach with the introduction of TM technologies.

TMs were created and implemented to re-use previous content and translations, to increase consistency and to speed up the entire localization process. Authoring memory tools were developed to help technical writers recycle previous content and improve consistency of the source material. Enterprise terminology management solutions help manage linguistic assets in a central repository where all project stakeholders can access common terminology, glossaries, style guides and reference material worldwide. Alone, each of these tools helps improve a specific technical aspect of localization projects, but more is needed to help worldwide teams collaborate.

Many people are needed to complete a globalization project — developers, technical writers, project managers, engineers, translators, reviewers, SMEs, client validators, DTP staff and more — so document management systems or CMSs were implemented to control the creation, localization, version control and publishing of software products, documentation, help, websites and all collateral material needed.

Team members are geographically dispersed and belong to different companies. In-country validators, for example, are almost always located in a different country than the product development team. The project team can therefore strongly benefit from a true virtual workspace where all aspects of the project are taken into account.

Workflow and collaboration platforms were designed to close this gap. This powerful technology platform was created to manage the complex globalization workflow,

integrate all developed tools and create a virtual workplace for all stakeholders. Virtualizing the work and communication space is made possible using internet technologies. This technology can be found in the marketplace offered, by technology companies or through LSPs who have developed their own proprietary solutions and offer them as an added value to their main accounts.

Localization projects can have highly complex processes, and a workflow and collaboration platform can help a PM to configure a clear and detailed project plan based on a workflow process that can be tightly budgeted, managed and tracked. Clients can receive quotes and invoices online, see full financial enterprise-wide information over the entire localization budget, monitor progress and performance of all ongoing projects, and manage exceptions and time-critical events.

But further steps must also be taken, such as standardization of processes and user-friendly interfaces that allow non-specialists to participate in the project. For example, an SME in radiotherapy does not have to be a localization specialist to review a technical manual.

Up to now the answer in the industry has been to limit this tool-set and funnel the work through a fixed and inflexible (but worldwide) process. This method has

its advantages, and in all fairness it is only lately that internet technologies and business-to-business connectivity have given us the ability to go beyond.

A better approach lies within open architecture — integrating third-party tools and interfacing with other systems and enterprise resource planning. In other words, the new online community in localization should adopt and integrate an application exchange platform. This opens new perspectives for companies with aggressive growth plans and time-critical product introductions.

There has never been a better time for any organization, large or small, to become involved with localization. Our world is growing both larger and smaller at the same time. Companies are expanding their product reach far beyond their local areas into rich distant markets. Multinational people, words and technology are constantly changing and developing. There is much to be learned, but with a well-thought-out automated process and a powerful technology platform to drive it, knowledge and experiences can be shared openly, thereby making the migration from a local to a global enterprise much easier. We are in the global communication business, and this is a great thing if it gives a voice to all countries working on the team. **G**



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# AUDIO LOCALIZATION FOR LANGUAGE SERVICE PROVIDERS

FULVIO SIOLI, FABIO MINAZZI & ANDREA BALLISTA

**L**ocalization of a multimedia product with audio is a mandatory phase for any language service provider (LSP). Clients whose requests are usually limited to translation projects and desktop publishing often decide to add audio to a text translation in several languages. To do so, their immediate reaction may be to approach a local recording studio and try to get it sorted out. This approach can be problematic in terms of time, cost and quality.

Once inside the studio, the “language” used switches from a text-based one (words, pages, Word documents) to an audio-based one (actor bookings, dubbing direction, equalization levels, audio formats). Moreover, traditional recording studios are usually used for music, advertising or dubbing for film or television, and it is rare to find one with a specific expertise in localization. Instead of providing answers to production requirements, they often present unusual questions or suggest production methods that are difficult to understand for those working in the fields of translation and localization.

It is fundamental, therefore, to analyze in detail those issues specific to audio localization and, in particular, to multilingual speech localization. An audio track consists of two or more elements: a spoken track and one or more international tracks (music and effects), which usually remain the same in each localized version. In this article we will explain the basic concept of audio localization, focusing on speech localization rather than on the localization of background music and songs.

## Stages of audio localization and the professionals involved

Audio localization is structured into four sequential stages. The first is pre-production, which includes all the necessary preparation for recording: translation, script formatting and adaptation, actor casting, definition of pronunciation and the setup of a recording session on the sound engineer workstation (Figure 1). With preparation complete, recording can proceed. The actor, the dubbing director



Figure 1: Four tracks on the sound engineering station: English, Italian, French and Spanish.

and the sound engineer meet in the studio and record the voice. Once recording is over — in the third stage, known as post-production — the audio track will be cleaned of mouth noises and “dirty takes,” and the audio files are produced, named and converted into the final format(s). Finally, particularly with a multilingual product, quality assurance (QA) will be performed on the recorded audio, involving an integral proof-listening and file-naming check.

The person with the job of casting the actors and managing the audio budget is the project manager — also known as “producer” in audio recording terminology. The key figures for audio localization are the dubbing director, who is responsible for the artistic quality of the recordings; the actors, who recite the text; and the sound engineer, who is technically responsible for the recording quality and generation of the audio files. Finally, some of the more organized studios offer proof-listeners for the audio QA.

## Collecting the basic information

When an audio localization request is received, some fundamental information must be gathered in order to decide how to best organize production.

How long is the source text? The answer to this question will affect not only the translation but also the time needed for recording.

How many characters will be speaking? What sort of characters are they? This will affect the number and type of actors to be cast.

Will the characters be shown on screen? Will the screen action and speech have to be synchronized? The answer to this question will influence the type of recording used.

Is the original audio or video reference material available? This is necessary for some recording types (Table A).

How many files are to be produced? This affects post-production time.

What audio format is required? This influences the type of post-production.

While it may seem impolite to bombard a potential new client with questions and

Recording type	Character appearing on screen	Restrictions on the translated text	Text adaptation	Mandatory audio/video reference for studio	Studio time for recording one hour of final speech
Wild	No	No restrictions	No	Not needed	3-4 hours
Time Constraint	No	Check text length and synchronization points if applicable	Yes	Need original audio files	6-8 hours
Sound Sync	Yes	Check text length and internal pauses	Yes	Need original audio files	12-16 hours
Lip Sync	Yes	Requires adaptation to lip movements	Yes	Need original video files	12-16 hours

Table A: Summary of recording types.

requests for information, doing so can save a considerable amount of time during production. It also means an accurate quote can be presented to the client. Experience has shown us that it is far better to find out the details of the project beforehand than to discover them bit by bit as the project progresses.

### Types of speech recording

In dubbing for film and television, artistic formats are fairly standardized (feature film, documentary, comedy and so on). When speaking of recording types, terms are often used in reference to the artistic result you wish to obtain — the most used terms being voiceover and dubbing — but it is important to know that there is no international standard. In the world of localization, audio is reproduced on a computer or console (online training applications, interactive presentations, games, podcasts and so on), and there are no artistic genres that define with precision the type of recording used. For

localization, four main recording types can be identified: Wild, Time Constraint, Sound Sync and Lip Sync recording. These types, which are based on the recording process used, differ in complexity, execution times and budget.

- **Wild recording.** The text is recorded with no time constraints. Typical examples would be text for an automated telephone switchboard or a user-initiated audio help on fixed screens. The timing of the original version is not a constraint for the localized version, so the original audio files will be used by the studio purely for the actor's reference.

- **Time Constraint recording.** The total duration of each audio file must be identical to the original. The reasons for this may be purely technical — a software plays synchronized media on screen, for example — or they may be technical and expository. Time Constraint may be tight if there are moments when the spoken description is synchronized with events on screen — for example, if the text recited by a narrator is commenting on events with a set duration such as mouse movements on screen or a sequence demonstrating the assembly of a product.

Care must be taken during translation of the script not to lengthen the text, just as when translating graphic interfaces. Eventual points of synchronization must be identified and marked before translation begins so that the translator can take them into account and not alter the flow of text — inverting the display sequence to improve the syntax, for example. When possible, give the translator a copy of the video that will accompany the audio. It's advisable to adapt the text after translation anyway.

- **Sound Sync recording.** This means, literally, a recording that is synchronized with the audio. The term, specific to the gaming industry, is used when synthetic screen characters must be dubbed in lip sync with the

original audio, but the characters' rendering has yet to be completed. During the recording stage, not only must the total length of individual audio files be maintained, but also pauses within the speech. The translation of the script must not be longer than the original text, and the text should be adapted to match the pauses within each sentence.

- **Lip Sync recording.** This is a recording synchronized with lip movements. Real or synthetic characters are available to be shown on screen during recording, speaking alone or with each other. Localization in this case follows the process of traditional film or television dubbing. The translated text must be adapted on the video to match the movement of the lips.

Table A summarizes the main data for various types of recording.

### Translating and adapting text for audio/video

The first point to remember for a good audio localization is that the final quality depends largely on the information gathered during the initial phases of translation. Before starting to translate, it is essential to understand the type of recording needed and to check whether restrictions should be set on expansion of the target text. Expansion coefficients, which vary from language to language, are usually the main causes of delays and difficulties during recording. Simply reading the text faster does not always compensate for a translation that is too long, especially when the text is fragmented and synchronized with frequent screen events.

The recording speed, or rather productivity expressed as a ratio between the number of words recorded and the time required for the actor to record them, drops dramatically when moving from Wild recording to other types of recording because of the constant need to check consistency between

### Translation of recording scripts

In the case of long texts, it may be useful to transfer the text to a spreadsheet so that numeric information about the character length in each source and target cell (file) is easily available. For recordings with time constraints, this approach is always recommended as it allows you to

- 1) immediately see how much the target text expands in translation;
- 2) prevent the translator from altering the text by joining or dividing phrases that may be linked to important screen events; and
- 3) link the document text to the relative audio file once work has ended, ensuring the completeness and accuracy of the names assigned to the audio files to be delivered to the client.

Table B shows a basic model usually used for Time Constraint recordings.

ID	Filename	Source text	Target text	Difference characters	Difference %	Hyperlink
1	o82.wav	In this demonstration, you will see launching a serial session and closing a serial session.	O exemplo mostra como iniciar sessão serial e encerramento de sessão serial.	-15	-20%	<a href="#">o82.wav</a>
2	o83.wav	Topics include detailed reporting, e-mail notifications, exit macros, virtual media, and many more.	Os tópicos incluem relatório detalhado, notificações por e-mail, macros de saída, virtual media e mais.	4	4%	<a href="#">o83.wav</a>
3	o84.wav	In this lab exercise, you will create a macro to log off the server.	Neste exercício, você criará 1 macro para fazer log off do servidor.	0	0%	<a href="#">o84.wav</a>

Table B: Basic model of script for Time Constraint recordings.

the length of the original file and that of the target audio (Table A).

Recording speed is much faster when the text has been properly adapted — when the right compromise is found between comprehension of the translated text and containment of the final text within the limits set by the original product. Remember, in cinematographic dubbing, adaptation often takes longer than

the translation itself and is always done by professionals known as text adaptors and dialogue specialists. When a multimedia application is being localized, adaptation is often relegated to a secondary position, if not neglected entirely. Its value is clear, however, when one sees the speed with which the actor is able to proceed during the subsequent recording stage — as well as the final quality of the product.

the original audio files with the localized ones. Failure to do so implies re-engineering the software, the complexity of which depends on how the Flash application was developed. Assessment of which solution to use will necessarily involve a careful analysis of the Flash files and a comparison of software engineering costs against adaptation and recording costs.

### Actor casting

Actors are vital to a good audio localization. The actor used must always be a professional mother-tongue actor, possibly residing in the target country to avoid regional inflections that will be immediately recognized in the target countries. A studio that works within such parameters can offer a variety of voices and acting styles that will suit the needs of listeners. In general, for business-to-business (B2B) applications, two or three voices will be required for characters and will be taken from the studio's database, whereas for more critical productions or those with vivid characterizations, the studio can record a short piece of specially selected text. The speed with which the studio can respond to requests of this kind is a strong indicator of its professionalism in the field of audio localization.

Once the voice has been selected, the actor's availability at the time of production must be taken into account. As it is more difficult to change an actor than a translator, ask for more than one voice sample for each character and give a preference rating so that if the first choice of actor is not available in the short lead times typical of localization, the second choice may be booked.

### Give reference material to studios and translators

The recording type will also affect the amount and type of reference material to be provided and post-production activities. A

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Wild recording will simply entail sending a script via e-mail to the recording studio. Other types of recording will require a script plus reference audio and/or video files. In any case, the script provided must contain the names of audio files so that the audio files can be named correctly during post-production. During pre-production, the studio will prepare the recording sessions (Figure 1) so that the actors can be given the original audio on headphones and the original video can be shown on the screen during recording. As with adaptation, preparation for recording will save time later during the recording stage itself.

To facilitate communication and to simplify recording, ask the studio which system it uses for recording. Hard-disk recording systems will usually accept uncompressed audio files — for example, Wave, PCM, 44.100 Hz, 16 bit — and video files in AVI, WMV or QuickTime format with various compression types.

Audio files can be transferred easily, but video files should be converted into

compressed formats so that they can be sent through the internet to the studios and translators. Unless one needs to mix audio tracks onto the video tracks, high-resolution video files are not necessary. Such files can reach 100 megabytes per minute of film.

### Pronunciation management

Definition of pronunciation is crucial and plays the same role in audio as a glossary does in translation. Common lexis has standard pronunciations in each country, but special terms and names may have different or undefined pronunciations. For example, even if they are not translated, product names must be pronounced according to the client's specifications. In pre-production, a glossary of pronunciations is drafted consisting of those terms the client deems critical with instructions on how to pronounce them. Usually the instructions are in the form of a description ("Use English pronunciation") or, more rarely, phonetic symbols. A surer way to ascertain correct pronunciation without forcing the client to take part in

lengthy recording sessions is for the client to record a low-quality file of critical terms in the various languages so that the actors can refer to them when speaking in the target language. Marketing offices and local branches of the client company are usually sensitive to the importance of this issue and are willing to help.

If doubts on some pronunciations remain at the time of recording, the studio can record two versions of those phrases containing the words in question. This approach can be impractical, however, if there are many of these words or if they are repeated frequently.

### Primary economic implications

Cost structure is one of the areas in which audio localization differs most from localization of text and graphics. The quantity of text to be spoken, the type of recording and the number of actors required will all influence cost greatly. The simultaneous presence of several people during recording sessions with

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relative booking fees and union rules for actors in the various countries also means that, with the exception of series productions, it is not possible to simply multiply a quantity by a price and obtain a cost.

As prices vary from country to country and often from studio to studio depending on the studio's areas of specialization (dubbing for film, advertising, multimedia), here we will discuss those production parameters that will allow us to construct a production model with which to assess offers.

Bearing in mind that our assessments here are for the practical purposes of this article and are approximate, to produce an hour of finished audio with a professional actor, a studio needs three to four hours for a Wild recording, six to eight hours for a Time Constraint recording and at least 12 to 16 hours for Sound Sync or Lip Sync recording. The actual time will increase if the text is technical and if the text must be interpreted artistically, and it will also depend on how well the text has been adapted for time constraints or screen action. On the other hand,

if the text is conversational, consisting of long sentences spoken in the same manner, recording speed will be greater than a case where short individual phrases are required, each with a different interpretation.

*Ask for  
two samples of  
male voices and  
two samples of  
female voices  
for each language.*

From a financial perspective, it is clear then that the recording type plays an even greater role than the amount of text to be recorded. Its effect on cost is also amplified by the fact that an increase in recording time

does not just mean higher studio costs, which usually include the sound engineer, but also higher fees for the dubbing director and actors.

As regards the actors, in most countries where dubbing has a consolidated tradition, actor fees are based on a fixed booking fee — which can be fairly high — plus a fee based on the number of words/pages/lines/takes/minutes recorded, with standards that vary according to the countries and regulations to which the studio must adhere. The costs deriving from fixed booking fees may be significant for recordings with few words but many actors. One can make considerable savings without affecting the artistic quality of the final product by carefully examining the characters involved and possibly combining several characters to be played by a single actor. It's advisable to discuss with the studio all the possible options. The number of actors involved in recording is also an indicator of how complex the process is.

#### Assessment and selection of the audio localization vendor

For those with limited experience in audio localization, choosing an audio vendor may appear complicated because of the number of different parameters and people involved. Here are several steps that may help you to choose the vendor that best suits your requirements.

Define precisely what you need from your audio vendor, what you need to give the vendor and what you want in return.

Immediately discern musical studios from dubbing studios. The former are easier to find, but the latter are the ones to be used for localization.

Be sure of the production chain you are buying. Ask for a description and explanation of all activities that must be carried out to complete the job successfully. It may seem obvious, but it is very important that the audio vendor has a transparent approach when describing its production methods.

Make sure that at least three professionals are included in the price: actor, sound engineer and dubbing director. A recording without dubbing direction is like a translation without proofreading.

Always request a technical sheet of hardware and software that will be used, even if you are not sure how to assess their appropriateness. Avoid studios that record on to tape. Recording studios for multimedia entertainment or B2B are now based

purely on hard-disk recording technology (usually Digidesign Pro Tools) that allows complex editing in a short period of time.

Ask for two samples of male voices and two samples of female voices for each language.

If the studio you are in contact with coordinates and provides several languages, make sure that the actors who do the recording are not just native speakers but also professional actors, possibly resident in the target country. It is even better if the recording is made in a studio in the target country. In this way, the dubbing direction is also carried out by mother-tongue directors, and the final result will be, without doubt, of a higher quality.

As usual, when comparing quotes, make sure they all cover the same working processes. It may seem obvious, but, when an artistic component is involved, personal sensibilities can vary enormously and may result in a significant difference in terms of time involved. If in doubt, ask for an estimate of times divided into stages or macro-activities.

In some countries — in particular in the United States — clients will take part in the recording session so that they can control production directly. However, if the pre-production phase is carried out correctly and recording is done in-country, you can rely on professional recording studios that can produce daily audios in the target language ready for air. In this way you can obtain a very high-quality level. For multilingual speech localization, the in-country solution can save many hours spent in the studio or on the telephone checking the recording stage.

#### Project coordination


Once the audio vendor has been chosen, a good coordination performed by the LSP is essential for a successful project. More specifically, it is the LSP's responsibility:


- to manage translation of the script and draft the pronunciation glossary.
- to define the level of freedom that the studio can have in editing the text. These levels may range from not being able to touch the text at all as it has been

approved by the client to a limited possibility of editing syntax errors to freedom to alter the text at will to improve comprehension. Remember that editing or adapting the text during recording will take up the time of at least three people — actor, dubbing director and sound engineer — with a consequent increase in costs.

- to assess the work to be done together with the recording studio, planning every stage of the production process.

#### Conclusion

Creating audio should be tackled with the same level of professionalism and transparency used for undertaking a translation. Audio, just like translation, requires dedicated resources both from a technical perspective (sound engineer, hardware and software) and from an artistic one (text adapter, actors and dubbing director). Although recording is a substantially different activity from translation, many of the same quality control and assessment principles apply. Happy recording! 



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