

# Internationalization Services

*Should You “Go It Alone”  
When Going Global?*

Brought to you by Lingoport, Inc.



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## Introduction

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If your firm is involved in, or anticipating, a steady stream of localization (“I10n”) projects in the near future – and why not, given the huge opportunities available in overseas markets –you’ve inevitably confronted the question of how to streamline and reduce the cost of such efforts. For technology firms with significant software components to their business mix, the answer often rests in internationalization.

As every globally savvy technology company knows, internationalization complements localization projects, by **preparing applications for more efficient, timely localization**. According to the W3,

**Internationalization** (“i18n”) is the design and development of a product, application or document content that **enables easy localization** for target audiences that vary in culture, region, or language.<sup>1</sup>

Without i18n, I10n efforts can be a frustrating sequence of linguistic and cultural “treasure hunts” through your code base, one language at a time. Such projects are time-consuming distractions for your critical engineering resources, and a major threat to your business timelines. That’s why i18n is increasingly becoming a strategic consideration in globalization efforts.

So there’s little debate as to *whether* i18n can help make international software deployment better, faster, cheaper, and less risky. **The critical question is: how best to get i18n done?**

It’s the classic make-or-buy judgment. This document examines the issues related to deciding whether to farm out the task to expert service providers or to keep the job in-house.

## Internationalization: What’s the Big Deal?

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Internationalization involves rebuilding code to accommodate the requirements of localization. What makes this seemingly straightforward engineering task so challenging?

Unfortunately, there’s far more here than meets the eye. Adam Asnes, founder and CEO of Lingoport, a specialist in i18n services to leading technology and technology-dependent firms, broke down the major issues in a recent issue of *Client Side News*<sup>2</sup>:

I meet many localization sales people and executive staff that actually don’t understand internationalization at all. It’s simply a

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<sup>1</sup> Source: Richard Ishida, W3C, Susan K. Miller, Boeing; “What do the terms ‘internationalization’ and ‘localization’ mean, and how are they related?” World Wide Web Consortium (www.w3c.org), 2005

<sup>2</sup> Adam Asnes, “Winning Revenue by Globalizing Right,” *Client Side News* (Feature), October 2006

problem that they have never dealt with. Perhaps there's more than a touch of "eyes glazing over in boredom" when they see technical articles about the subject; but you really don't have to make major technical leaps to understand the issues.

Simply put, internationalization is all of the planning and execution that needs to be included in the development of software that lets the software support languages and locale formatting (like numerical formats, dates, times, currencies, postal addresses and more). Applications not only have to be capable of displaying any language, they have to correctly allow the input, storage, processing and retrieval of that multilingual/multi-locale data.

It mostly breaks down to engineering for a few categories of issues, which include:

**Character Encoding** – Every character you see on the screen corresponds to a set of zeros and ones that get "interpreted" into what you read on the screen. How an application supports character encoding determines whether it will actually work in Chinese, Japanese, French, German, etc. This is where terms like Unicode or ISO-Latin apply. The right character encoding strategy isn't always obvious and will depend on a balance of marketing requirements, technical requirements and development budget, especially if the code already exists rather than starting from scratch.

**String, Images and Resource Management** – Every message presented and ultimately translated in an application is referred to in software terms as a string. An important and time consuming part of internationalization involves finding all the user-facing messages (but can also include things like interface sizing), extracting them from the source code, and placing them in some kind of repository files (or database) appropriate to the software architecture. That way you can work on translating the words without breaking the source code. With the right engineering those words can be replaced with any language that the application is supporting. Additionally, string management includes issues like sorting, string concatenation and the like. You'll also want to identify and manage any images that are embedded in the code (just like strings) so that they may be localized as necessary.

**Locale-limiting Functions** – Each programming language has its own set of functions or methods that do things like limit the way a date is interpreted, or how many bytes a character can contain. There are hundreds of these sneaky little things in C/C++ and there are dependencies based on your character encoding choice (e.g. Unicode UTF-8). Other programming languages such as Java and C# have less of these issues, but still have their own possible pitfalls. These functions need to be found and replaced with others that support the locale requirements that will be needed.

Programming patterns can be a **big nasty area to re-engineer**, and it takes experienced examination and planning to manage.

**Locale-limiting Programming Patterns** – Programmers may do many of the right things in terms of extracting strings, using functions that support “wide” characters and the like, but it’s still easy to get in trouble. Think of programming patterns as logic created for a specific application, which doesn’t work once you include issues around multiple locales. Programmatic sorting logic is a good example; a typical developer would sort by alphabetical order rather than by character brush stroke. Programming patterns can be a big nasty area to re-engineer, and it takes experienced examination and planning to manage.

**Locale Operators** – Simply determine how the software will detect what locale it needs to support and how it will behave under the circumstances. For instance, does the user manually choose the locale, or does the application check the operating system setting?

**Third Party Product Limitations** – Most software makes use of other application components. These can include databases, reporting mechanisms (i.e. Crystal Reports), email generators and more. Often these components have their own internationalization support issues, which can create their own challenges to the software developer.

### *Should You Try This at Home?*

As we’ve seen, there’s a great deal more to i18n than many firms bargain for, though some, especially large multi-nationals, choose to try. With available resources, time, and experience, it’s certainly true that i18n capabilities can be built in-house, and many have.

But for many more, the issues boil down to these questions:

- Can your firm afford to the **cost** to build, train, and supervise “native” i18n project capabilities, and
- Can you afford the time-to-market **risks** that result from this decision?

The second issue generally looms largest. Most technology firms have their hands full with the demands of core application work, and aren’t willing to bet their international business prospects on their capabilities in a specialized function of this type. That’s why, increasingly, many turn to domain experts like Lingoport.

So, as with most business issues, it’s ultimately a matter of money. Let’s take a look at the dollars and cents of the decision.

## The Financial Case for Outsourcing i18n

The financial case for outsourcing some or all elements of an i18n effort are reflection of the two issues detailed above. If you turn to service providers instead of dedicated staff, in theory you avoid the

- a) **Costs** of an in-house staff, and
- b) **Risks** of missing international business objectives by underestimating the time and effort required.

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We'll take them both in turn.

## ***Replacing staffing costs***

The advantages of hiring outside help, in i18n or any other specialty, are straightforward. Another company (the service provider) absorbs part of the expense of maintaining a dedicated in-house staff in the specialty area, by taking on two major cost components:

- The **fixed costs** of headcount, or the expenses unrelated to the volume of work they do – items such as office space, equipment, training, benefits, and the like, and
- The costs of **downtime**, or the chance that the resource is occasionally idle due to “lumpiness” in the timing of global business initiatives.

In an outsourced model, of course, the client pays for only the time that's expended on their project directly, not hours that weren't because they didn't have continuous, “level” demand for the specialty at a specific time. And there are no direct costs to hire, train, and otherwise support the employees involved – that's a cost of doing business the service provider pays.

Conservatively, the overhead costs described above, as well as the potential for idle time between global initiatives, can run as much as **40% of total personnel costs**.

## ***Mitigating time-to-market risk***

This impact is generally more critical than the first, and boils down to this: can a dedicated, deeply experienced outside team be expected to complete required i18n work sooner, at higher quality, than an in-house team?

The answer varies by situation, of course, but years of experience suggest it can. At Lingoport, our teams have seen virtually every permutation of i18n coding challenge, across multiple platforms, operating systems, locals-specific requirements, and much more.

Significantly, Lingoport's staff use of its proprietary Globalyzer software magnifies the effectiveness of the company's services vs. other alternatives – amplifying the outsourcing model's time-to-market and cost-competitiveness advantages against other approaches.

The impacts in this area are especially evident with firms expanding through merger and/or acquisition. While the acquirer is obviously familiar with their own code base, they're invariably less so with the new addition's technology. Hiring a 3<sup>rd</sup> party to assist in these cases not only brings a fresh, experienced eye to the project, but also can install a neutral “arbitrator” in the midst of often-tense cultural transitions within the new joint entity.

## ***Adding It Up***

Let's look at an example of the second effect above – the time to market risk issue – only.

Lingoport's use of its proprietary **Globalyzer** software **magnifies the effectiveness** of the company's services vs. other alternatives

Assume a technology product or service projected to generate \$10M in first year revenue from a single new international market. What would be the cost of a 3-month delay in releasing that product to its target market?

We'll further assume a general cost profile consistent with firms Lingoport has served in recent years. And we'll assume that the product experiences only modest growth over a five-year timeframe.

The P&L below displays results with and without i18n factored in:

Yr 1 revenue	10000
Ship delay (mo)	3
Annual Rev growth	5%

**w/o i18n**

Revenue		7,500	10,375	10,894	11,438	12,010	52,218
COGS	30%	2,250	3,113	3,268	3,432	3,603	
GM		5,250	7,263	7,626	8,007	8,407	
Op Exp	50%	3,750	5,188	5,447	5,719	6,005	
EBITDA		1,500	2,075	2,179	2,288	2,402	10,444

**w/i18n**

		Yr1	Yr2	Yr3	Yr4	Yr5	Total
Revenue		10,000	10,500	11,025	11,576	12,155	55,256
COGS	30%	3,000	3,150	3,308	3,473	3,647	
GM		7,000	7,350	7,718	8,103	8,509	
Op Exp	50%	5,000	5,250	5,513	5,788	6,078	
EBITDA		2,000	2,100	2,205	2,315	2,431	11,051

**Impacts**

Revenue	3,039
EBITDA	608
	5.8%

Outsourcing i18n tasks can **multiply the benefit** by as much as **10 times**, given the diverse international markets the average firm might address over time.

As shown, the firm stands to benefit substantially through reducing time to market alone - enjoying nearly **6% increases in both revenue and EBITDA**, most of that impact occurring in year 1 of the analysis, with smaller advantage in each subsequent year. If higher sales growth expectations or the expected cost savings from the i18n effort to produce these results were included, the impact would be even greater.

And most importantly, for this same product, the same financial improvement would accrue to **each subsequent i18n project** targeting other overseas markets. That could multiply the benefit by as much as 10 times, given the diverse international markets the average firm might address over time.

## Case Studies: How Outsourcing Helps Leading Firms Accelerate Time to Global Markets

It's clear that internationalization can complement and enhance i18n efforts in important ways. i18n makes every i18n job simpler, quicker, and more repeatable, while i18n requirements make i18n necessary, even strategically important.

But with a dizzying array of project requirements, internal resources, outsourced service providers, and urgent management expectations compounding the complexity of global initiatives, it's fair to ask: can these integrated projects come together, on time and in budget?

In Lingoport's experience, the answer is yes. The company has a long track record of working with leading I10n firms and internal staffs to coordinate efforts— in myriad different ways, from simple project support to fully outsourced project management.

Two case studies that profile sample relationships and successful client outcomes follow.

### ***When in Rome...Lingoport Outsourcing Drives Competitive Advantage for Travel Technology Leader***

Lanyon, a leading information distributor to consumer travel sites like Expedia, as well as corporate travel departments, faced a problem familiar to every globally ambitious technology firm.



Their international customers (chiefly hotel operators) preferred to work with the company's information-gathering applications in their native languages. And when your business depends on the accuracy and timeliness of such information, internationalization becomes a strategic issue.

Philip Blahut, Lanyon's director of software development, saw an opportunity. More than simply a convenience for their customers, language- and culturally-specific interfaces represented a crucial competitive advantage for Lanyon.

Blahut turned to Lingoport for several reasons. Like many firms, Lanyon lacked the specialized expertise for rebuilding information interfaces to support multicultural requirements. More importantly, Blahut needed to keep the company's limited engineering resources focused on core tasks. And Lingoport's long-standing relationships with leading I10n service providers made the choice simple.

Lingoport's outsourcing team stepped in to manage the entire internationalization process, including coordination with Lanyon's preferred I10n partner. "Lingoport's team was completely professional, setting clear expectations and timelines, then meeting them," said Blahut. "It allowed me to stay 'hands off' in completing the project, and insulate our critical internal resources from distractions we couldn't afford."

In short order, the work yielded top line results as well. A Chinese hotel customer chose Lanyon as their information redistributor, in part because Lanyon was the only alternative that supported native-language information exchange. Other Asian clients followed.

"As we expand our global reach, we'll need more support in converting our applications for world markets," Blahut asserted. "We'll expect Lingoport's services will be a major part of those efforts."

## ***Sycle.net: Accelerating International Business Results through Outsourcing***

In six short years, Sycle built a dynamic, growing business supplying the most advanced online



patient management and marketing application to over 3,500 hearing care practitioners in the US and Canada. But when the world came calling, a daunting task lay ahead.

A prospective partner approached Sycle to take their business to overseas markets. Like many growth businesses, however, Sycle didn't have the depth of experience – or easily available resources – to take on the software reengineering required for the task.

Sean Shofstall, Sycle's CTO, understood the challenge: the company's code base, developed for domestic markets, was full of common impediments to easy, repeatable localization. And the confusing array of localization options wasn't easy to sort through, as well.

Lingoport's endorsement of a localization partner helped get the ball rolling, and under Sycle's management, both the i18n and localization projects were completed in timely, cost-effective fashion.

"It's easy to get bogged down in localization projects if you're new to the space," said Shofstall. "Unless you're lucky enough to have in-house software internationalization resources – and we aren't – it pays to bring in the experts. Lingoport's work helped make our path to international markets smoother than we'd ever hoped."

## **For More Information**

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A vital resource for developers of global web applications is the Internationalization Core Working Group, part of the W3C Internationalization Activity.

Learn more at <http://www.w3.org/International/core/>.

You'll find in-depth technical information about best practices for information architects, software developers, and other technology professionals with ongoing internationalization requirements.

## About Lingoport

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Founded in 2001, Lingoport, Inc, helps global businesses adapt and leverage their software for world market readiness. Lingoport's internationalization Services, including code analysis, i18n implementation, testing and training supports the global business objectives of leading international companies, and the company's market-leading Globalyzer software helps companies systematically adapt their software code and development practices to be more efficient for worldwide customers who demand that software works the way they expect it to.



In addition to its offices in Boulder, Colorado, Lingoport maintains development offices in Laramie, Wyoming. For more information, call +1-303-444-8020 or visit <http://www.lingoport.com>.

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