

Enhancing Internationalization Productivity

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Overview

Technology companies with global objectives understand the importance of software internationalization (“i18n”) as they juggle localization requirements. But they struggle with determining how best to accomplish their larger goals, given the complexity and other challenges of code that’s typically not designed for every overseas market.

Even if your firm has the luxury of building and maintaining an in-house staff devoted to i18n tasks, you’re inevitably subject to the business pressures every engineering department experiences: tight deadlines, limited budgets, and often unrealistic expectations for your existing staff’s productivity.

This document discusses how software productivity tools designed to support i18n project teams can yield significant benefits, and ultimately, better global business results.

Internationalization and Your Global Strategy

As every globally savvy technology company knows, internationalization complements localization projects, by preparing applications for more efficient, timely localization, and ultimately, faster entry into global markets. According to the W3,

Internationalization 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.¹

Without i18n, i10n efforts are often a frustrating, time-consuming sequence of linguistic and cultural “treasure hunts” through your code base, one language at a time. Such projects can be costly 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.

Visionary companies with the resources to do it have made the commitment to build in-house i18n teams to fulfill this strategic imperative. But it’s seldom as simple as it looks to maintain a specialty like i18n, for multiple reasons. No surprise – no matter how committed an organization is to funding strategic initiatives, there never seems to be enough hours in the day to accomplish the broader goals of the company.

So the question becomes: how can engineering management optimize the resources available to them to accomplish i18n goals?

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¹ 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

Productivity Tools: When Time Isn't On Your Side

So you've built a strong internal team dedicated to – or at minimum, familiar with – i18n processes and objectives. Still, pressure mounts to get more done faster so that localization efforts move forward efficiently, with predictable timelines and at minimum cost.

There's really only two ways to accelerate your firm's ability to deliver internationalized applications, ready for effective localization:

- a) Add trained, qualified staff to the effort, or
- b) Enhance the productivity of the staff you already have.

In most cases, a) simply isn't practical. i18n professionals know it's difficult to locate, hire, train, and retain employees with deep understanding of the i18n specialty. And even if it weren't, adding staff when deadlines loom isn't an option – by the time you've found appropriate personnel, trained them on your specific code challenges, and put them to work, your schedules are almost certainly slipping. Worse, You're taking two steps back for every step forward you make in building your i18n capabilities.

Assigning existing staff to train and mentor new hires **almost certainly slows** your project(s) to an **unacceptable pace**.

Putting Technology to Work

Identifying and using productivity tools to leverage your i18n staff's time is likely to be a more practical approach, especially when time is tight (and when isn't that the case?). Such tools enable existing staff – even novice i18n engineers – to accomplish far more in far less time, by offloading the mundane line-by-line code analysis inherent in i18n projects.

Specifically, the best of these tools take over the routine tasks of scanning your code, line by line, for problems typical to applications that weren't initially designed for “global readiness”; segregating these issues from the larger code base, typically across many dozens of files; and presenting a convenient interface to your engineers for remediating the problems – once and for all. The result is code that's equipped to handle all current and future localization requirements without the recurring investigative work of so many i10n efforts.

These tools offer the familiar promise of vertically-focused applications: by taking over the low-level tasks of the broader process, you free up your personnel to focus on adding value where it's most needed – applying their expertise at building top quality “global-ready” software.

A prominent example of commercial i18n software is Globalyzer. Produced by Lingoport, a leading i18n services and tools provider, Globalyzer was created to increase the company's internal staff productivity during client engagements. It's been employed for many years across a variety of platforms, languages, and architectures to address a huge range of i18n challenges. And it is continually improved according to the needs of clients and Lingoport's staff alike. See below for more information.

Adding it Up: The Financial Case for i18n Productivity Tools

Let's review how i18n productivity improvements can payoff for global businesses.

Let's assume your team is working to produce a technology product or service that's projected to generate \$10M in first year revenue from a single new international market. Let's further assume that incorporating productivity tools, like Lingoport's Globalyzer, can accelerate your team's delivery by 3 months.

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

The P&L below displays the results, both with and without i18n tools factored in:

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

<i>w/o i18n productivity tools</i>		Yr1	Yr2	Yr3	Yr4	Yr5	Total
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

<i>w/i18n productivity tools</i>		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%

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 I10n 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 I10n 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.

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About Globalyzer

Globalyzer provides an ideal solution for developers and QA engineers who must internationalize new and existing software applications. Globalyzer saves time, reduces development risks, and lowers maintenance and translation costs.

Globalyzer offers flexible control, fast results, a collaborative environment, an internationalization development environment interface, and detailed help for fixing internationalization errors in source code.

Globalyzer locates, reports and helps you fix the following potential internationalization issues:

- Embedded strings
- Concatenated strings
- Image references
- Locale-unsafe methods or functions, such as:
 - methods that limit byte-level character support (or, Unicode enablement)
 - date/time and calendar methods
 - numerical formatting methods, and more
- Programming patterns (both i18n patterns as well as customizable patterns for other issues)

To learn more about Globalyzer and Lingoport's line of products and services, go to <http://www.lingoport.com/product>.

For More Information

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

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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