



# INTERNATIONALIZATION PROJECTS, NOT THAT SIMPLE

A Lingoport White Paper  
By Olivier Libouban  
Globalization Lead  
[www.lingoport.com](http://www.lingoport.com)

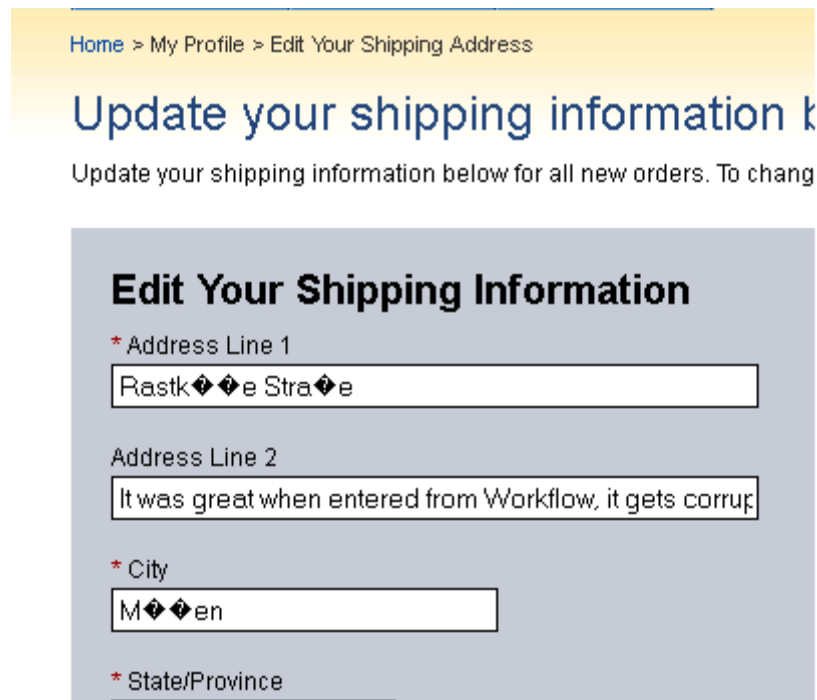
## TABLE OF CONTENTS

Introduction .....	2
Complexity .....	2
Internationalization Challenges .....	3
Unique Requirements.....	3
Internationalization process .....	4
About Lingoport .....	4

## INTRODUCTION

Since 2001, Lingoport has offered internationalization (i18n) expertise, products and services. A common misconception is that internationalization (i18n) is a simple matter of programming, to be done in little time. In the Java world, there are ResourceBundle type classes and in the C# world, there are CultureInfo and related objects. Just pull out some strings, translate them and you are done, right?

Not quite. The following screen shot is from a software solution where user interface strings were externalized. Here, some of the user-entered German characters get corrupted and show up as "?". This is just one of the many things that can happen when internationalizing software.



Home > My Profile > Edit Your Shipping Address

### Update your shipping information k

Update your shipping information below for all new orders. To chang

#### Edit Your Shipping Information

\* Address Line 1

Address Line 2

\* City

\* State/Province

## COMPLEXITY

In reality, internationalization of software can be rather complex. They are fully fledged software projects which require expertise, project management and QA, just like any other software projects. I18n cuts across the code, the interaction with external systems, the database, the user interface; i18n projects have their own challenges. This paper sheds some light on some of the many challenges most organizations face when targeting new markets for their software and why Lingoport has been so successful at i18n.

Lingoport worked with Cisco on the TelePresence i18n project which was led by an i18n and L10n Program Specialist whose previous experience with the complexity of i18n allowed him to communicate the need for i18n help:

“(At another company) we chose to go internally where we couldn’t do (internationalization) in one release because it sucked up all our development resources for that. So we had to figure out how to stage this stuff so we could get it done at the right time. What levels of code, which parts of the code need to be internationalized, or in this case Unicode enabled? Now, which parts can we do later?”

Certainly, a clear, concise plan needed to be contrived. A plan we were successfully able to formulate along with Cisco.

## INTERNATIONALIZATION CHALLENGES

One of the first things to look for when assessing i18n projects is the complexity of the application itself. It may be a very large application, developed by many teams over many years, with modules in different languages, large database structures, user interfaces in a Web browser or just a standalone application. This context sets the first stage of the overall complexity.

We also recommend understanding how the application needs to deal with locales. In our work at Lingoport, we have discovered over the course of many projects that it can be as simple as checking for the system's regional settings or as complex as managing multiples locales per page and keeping track of the locales when storing persistent data.

## UNIQUE REQUIREMENTS

Some of the complexity may come from the environment of the application. We have seen a hard-coded on screen keyboard which cannot work for eastern languages and bar code readers which need to input internationalized data.

There are several issues unique to specific language families. For example, bi-directional languages need to handle weak characters such as the open parenthesis character, and deal with translated files from localization organizations where resources are missing. Additionally, Arabic or Hebrew users require different layouts than the West, but due to the rise of these languages in technology, they would no longer qualify as a "nit-pick".

We have modified string handling packages which used simple methods (for instance, sorting data) which need to be refactored to become locale specific. In general, date and time are tricky to deal with, starting from the formatting of a time in French or in Japanese, to picking a date on a calendar widget.

Some of the complexity may be due to different encoding in the modules and layers of the overall software solutions. It may work fine in US-English but moving to a new character set breaks and corrupts data.

When a software organization needs to develop an i18n strategy, they often lack the experience and expertise around the many issues which can crop up during a project. Some organizations tend to underestimate the work-load and costs, hence delaying releases in global markets by months or sometimes years. This delay can have a significant impact on the revenue of that company.

People often run into trouble when describing the cost-benefit correlation of internationalization to executives in charge of budget decisions. Conceptualizing this is difficult, but as a top Senior Globalization Manager at Adobe put it, creating an intuitive dashboard for i18n is a great way to share a difficult concept:

"Very often, [executives] don't understand the details of internationalization, but they do understand dashboards, they do understand colors. So if they see a lot of reds for their product, they will want to know what they can do to turn those reds into greens."

## INTERNATIONALIZATION PROCESS

To ensure the success of internationalization projects, Lingoport has refined a process over the years to gather i18n requirements, identify and quantify upfront i18n issues to be resolved, and organize tasks in a project plan. This gives software organizations a clear and precise road-map to follow to accomplish i18n goals which will be adjusted to the overall requirements and processes of the product release plans.

This up-front assessment (also called a Jump Start) is built on four main axes:

1. Understanding the overall software solution and the major usage scenarios
2. Hashing out globalization and internationalization requirements, from target languages to locale handling to database constraints or Unicode support, etc.
3. Conducting an architecture discovery looking from an i18n perspective, examining each software layer and the major components of the system
4. Running Globalyzer on the current application to identify and quantify i18n issues in the existing code.

Based on those elements, Lingoport then derives a preliminary approach and creates a project plan we suggest and discuss with the software organization. An educational exchange is often necessary to explain the different parts of the project. The typical overall headings for the project plan include design, implementation and QA. Lingoport has an excellent track record implementing i18n projects, using experienced i18n managers, architects, software engineers and QA staff; team configurations vary from one software organization to another as we adapt to the different constraints. From the head Web Application Developer at NASDAQ OMX:

"We really appreciate your diligence in following up on these fixes for us, you no doubt have saved us many headaches in the future as we (or our customers) ran across the bugs one at a time. I must say I am more than a little impressed with your dedication to the accuracy and completeness of your work.

"I know how short the timeline was and what shape our code was in when we started, so the fact that we are where we are now is notable, and I felt compelled to share that feeling. I would not hesitate to recommend working with you guys again if the opportunity presented itself."

## ABOUT LINGOPORT

Lingoport provides a path for globally focused companies to improve their software releases for world markets. Globalyzer's development suite of products is the market leader for companies looking to to remove surprises in coding software for the world by providing automatically testing source code for i18n defects. Combined with comprehensive internationalization outsourcing services, Lingoport offerings enable customers to make world-ready software development a priority, and not a side project. [Contact us here.](#)