



Defining Quality in a Global Context: Preparing for Global Success

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strategy • process • technology • results

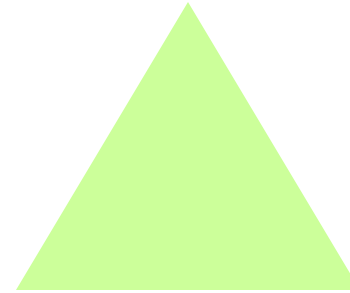
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Reality Check

- **What's going on here?**
 - A paper that poses the impossible?
 - Are we dreaming?
- **What are we going to do today in the time we have?**
- **People might think we are crazy, but it has been done.**
- **We've succeeded and we'll try to show you how.**

Understanding the Ideology

- **The three dependencies:**
 - **Time to Market**
 - **Cost**
 - **Scope**
- **Localizing usually produces quickest short-term results**
- **Internationalizing first and then localizing produces the most stable systems**



Points of Discussion

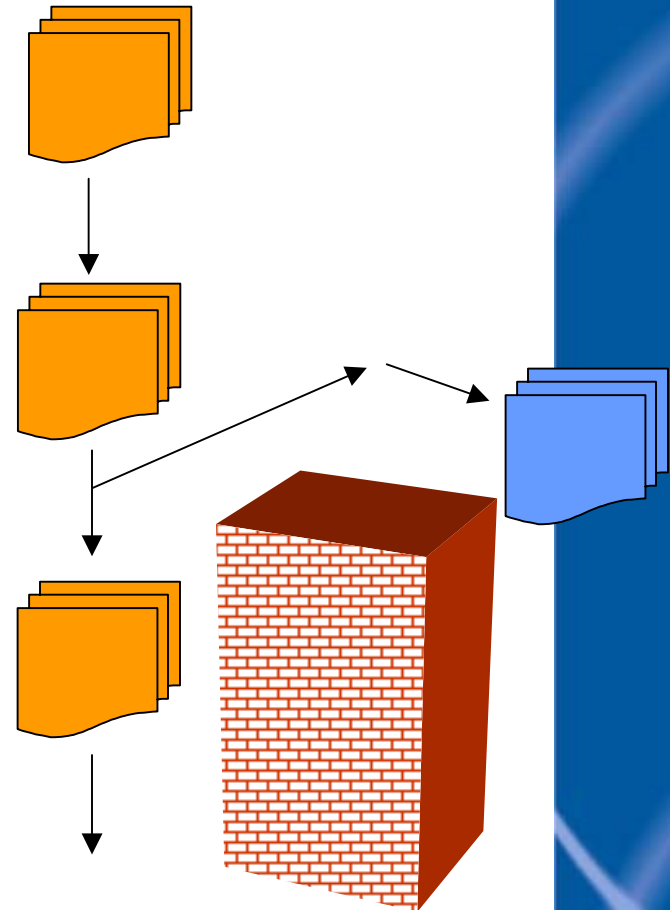
- **Example: Worst Case Scenario**
- **Planning for a Global QA Process**
- **Meeting the Challenges of Language-Specific Testing**
- **Selecting the Proper Tools**

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A Cautionary Tale: Acme Inc.

- The hypothetical story of Acme Inc.
 - Localize it now! "Just translate the strings"
 - Snapshot of source for 2.0 and "throw it over the wall"
- Who's doing QA?



Acme Inc. (continued)

- **“My sister’s best friend knows Japanese.”**
- **Who’s checking the quality?**
- **Lack of quality planning**
 - **Few formalized procedures**
 - **Little understanding of market requirements**
 - **No exit criteria**

Acme Inc. (What went wrong?)

- **Failure to coordinate**
 - **Mutant source**
 - **Company communication**
 - **Engineering, QA, Biz Dev**
- **Unknown requirements**
- **Weak translation process**
- **No Testing documentation**

Getting It Right

- **Market research**
- **Set the right expectations**
 - **Customers**
 - **Business partners**
 - **Your company**
 - **Your QA group**
- **Plan for global quality**
 - **Think I18N**
 - **Run the race as a team**



Set the Right Expectations (1)

- **Customers and Business Partners**
 - **Communication is key**
 - **Work with them to set up exit criteria**
- **Expected level of quality varies by market**
 - **Ex. Japanese market has higher standards than the US**
 - **User environment is different**
 - **In our experience, less features & more stability is a good plan of attack**

Set the Right Expectations (2)

- Your company and QA group
 - Communication is key
 - From our experience, solid QA usually accounts for 50% of the I18N development schedule
- **Testing a new language is very much like testing version 1.0 of a product**
 - Drop automated testing?
- A new language usually means a new team
 - Training is important

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Planning the Global QA Process

- **Resources**
 - Qualified QA personnel
 - Test environments
- **Modularized testing**
 - How do you do it?
 - I/O and UI testing
 - Example



Resources: QA Personnel (1)

- **Qualifications**
 - A “native speaker” is not good enough
 - How do you translate “GPF”?
 - Familiarity with computer terminology for linguistic QA
 - Understanding of Unicode, encodings, character sets, locales, I18N/L10N issues, etc.
- **Outsource testing?**
 - Make sure your needs are met

QA Personnel (2)

- **Training for QA Engineers**
 - **In-house**
 - **Long term commitment and investment**
 - **Consultant**
 - **Training on your software is a must**

Testing Environment

- **Test Lab**
 - Native language OS and browsers
 - Systems administration can be challenging
 - Is there a “core” configuration which is necessary?
- **Testing Tools**
 - Do they support your target language?

Modularize Your Testing

- **What does it mean to modularize?**
 - **Break the mountain of testing materials into more manageable portions**
- **Can you separate your tests into easily definable modules?**
 - **Create a group of modules that cover I18N issues**
- **Within each type of testing, how can you modularize?**

How Do You Modularize?

- **UI testing**
 - **Pop-up windows**
 - **Cataloging each pop-up or error message**
 - **Menu items**

- **I/O testing**
 - **Sample database**
 - **Ex. Customer information, generated email**

- **Unicode-enabled spreadsheet/database is a good method for cataloging test modules/data**

Modularizing Specific Tests

- **Functional testing**
- **Automated testing**
- **Linguistic testing**
- **Locale-specific testing**

How's about an example?

- **Acme Inc. is an electronic retail business that allows for customers to log onto there website to order their products.**
- **All customers must register their information before being allowed to make purchases.**
- **Let's take a look at a sample modularized test case...**

EN: I/O Module for Registration

Inputs	Test 1	Test 2
Username	X	
Password	X	X
First Name	X	X
Last Name	X	X
Date of Birth	X	X
Address 1	X	X
Address 2	X	X
	PASS	FAIL: Error Message on Username

JA: I/O Module for Registration

Inputs	Test 1	Test 2
Username	X	
Password	X	X
First Name	X	X
Last Name	X	X
Furigana		
Date of Birth	X	X
Address 1	X	X
Address 2	X	X
Address 3		X
	PASS	FAIL: Error Message on Username

Sample I/O Data for Registration

Inputs	English Data	Japanese Data
Username	UserUS	UserJapan
Password	UserUS123	UserJapan123
First Name	Test	実篤
Last Name	User	武者小路
Furigana		ムシャコウジ サネアツ
Date of Birth	07/07/1975	平成二年11月9日
Address 1	594 Howard St Suite 400	兵庫県神戸市
Address 2	San Francisco, CA 94114	須磨区南落合2-22-4
Address 3		アムール1-205

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Language-Specific Testing

- **Functional Testing**
- **Automated Testing**
- **Linguistic Testing**
- **Locale Testing**
- **Web Testing**

Functional Testing

- Have a clear spec!
- Test in parallel with base English system
- Create use cases
 - Uncover missing or inappropriate features
- **Ex. Testing of automatic email generation**
 - **What encoding should be used?**
 - **Sample database of language specific email**

Automated Testing

- **Creating data and manually localizing test scripts**
 - **Potentially labor-intensive and complicated**
- **Check to see if your tools support the target encoding**
- **Ex. Testing of menu items**
 - **How does the script call each menu item?**
 - **Has the product UI been translated?**
 - **When there is an error, is it the script or the software?**

Linguistic Testing

- **Two types:**
 - Testing acceptance of input characters
 - Translation checking
 - Early testing with pseudo-translation
- Testers must be familiar with computer terminology as well as industry terminology
- **Ex. Financial system UI testing**
 - Are all terms translated accurately?
 - Are all terms translated consistently?
 - What about compound strings?

Locale Testing

- **Currency**
 - Decimal point?
 - Use of comma (e.g. Spain)
- **Acceptable payment methods**
 - Credit cards
- **Date/Time**
 - 12 hour or 24 hour format
 - What does 01/02/2002 represent?
- **Ex. Online retail payment method**
 - How are customers expected to pay?

Web Testing

- **Browsers**
 - Popularity of browsers in other locations
- **Fonts**
 - Larger fonts necessary?
- **Graphical text**
 - No anti-aliasing
- **Ex. Online-retail business**
 - What browsers are necessary to hit 80% of the market?
 - Is the text readable?
 - Are the graphics appropriate?

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Selecting the Proper Tools

- What specifications should you look for?
 - Back to planning again

- Bug Database

- Automated Testing Tools



- **No tool will work perfectly; you will need to find the proper tool that suits you best.**

Choosing a Bug Database

- Unicode-enabled?
- Are attachments enough?
- Here are some example bug databases to investigate:
 - Teamatic
 - Rational ClearQuest
- **Typically from our experience, 25% of the bugs found are linguistic.**

Choosing an Automated Tool

- Home-grown versus purchased product
- Unicode-enabled?
- Here are some example automated tools to investigate:
 - WinRunner
 - Visual Test
 - Rational Robot
- **From our experience, it is a good idea to heavily weigh whether automated testing is needed on a first international release.**

Conclusion

- **Preparation is Key – Think I18N**
- **Communication**
- **Flexibility**



Questions?

Thank you for your participation and attention. Any questions?



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