INFORMATION TECHNOLOGY

"FACILITATING BILINGUAL AND MULTILINGUAL E-BUSINESS : ROLE OF WEB 2.0"

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1.0   INTRODUCTION

E-business or E-commerce has become tremendously important in today's business world. In a recent survey by Nielsen [13], India has emerged as the 3rd biggest nation, when it comes to online shopping. Drawn by the facilities offered by the Web and the diversity of products available on it, Indian citizens have emerged as the third biggest credit card users globally for online purchasing, next only to the Turkey and Ireland. The survey shows more than 85 per cent of Internet users in the world are purchasing goods or services online, with credit cards as the most used method of payment.

However it is the fact that a large number of traders, retailers and consumers speak languages other than English language. Hence there is a pressing need for the e-commerce websites which support other languages too, and the internet world has already made considerable progress in this direction.   In this article we analyze the effect of multilingualism or 'lack-of-it' on the E-Commerce as whole   mainly with focus on development of technological aspects responsible for it.

2.   MULTILINGUAL E-COMMERCE: THE CURRENT STATUS

A multilingual e-commerce website should provide contents in more than one language. It should facilitate multilingual store, Provision for international currency usage, International tax
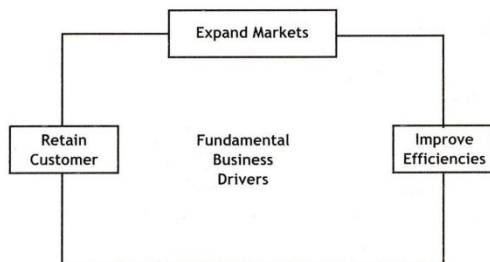
computation. Will introduction of multilingualism improve e-business as a whole. For two simple reasons the answer has to be in affirmative. First and the foremost reason is that

The evolution and growth of INTERNET and WEB 2.0 have been the two most dominant reasons for the tremendous development of e-commerce.

Secondly, whether it is traditional marketing, e-marketing or multilingual-e-marketing, it has been established over the years that there are three **fundamental business drivers** namely [Fig.1],

1. **Expand the market**

2. **Retain customers**

3. **Improve efficiencies,**

and the introduction of multilingualism will lead to strengthening of all the three drives.

Figure 1: Fundamental Business Drivers

With multilingual facility customer base expands many folds. With services in more than one language available customer retention will become easier. With options for other languages available, certainly grade of services will improve. Users will find more at home while using the services. Over the past few years many banking portals, travel portals have introduced multilingual facilities and the number is growing fast.

2.1 CURRENT STATUS OF MULTILINGUALISM ON INTERNET

Before actually discussing multilingual E-commerce proper, let us analyze the nature and distribution of availability of information over internet in different languages. It is well known that English has been the most dominating language over the net. Table 1 gives a clear idea of the dominance. However it is interesting to observe that Japanese and German are two languages which show significantly superior penetration over the last decade. It is also surprising that Indian languages do not figure in the general distribution of user statistics. Even though Chinese, Russian and Spanish languages are most spoken languages in the world, internet penetration in respect of these languages seems to be low compared to Japanese and German. However when we look at percentage of Web pages available of users English is way ahead of all other languages, with German and Japanese following in that order.

Table 2 gives an account of availability of multilingual facilities on some of the prominent commercial sites in India. A summary of commercial features is also presented. Fig 2 gives comparison of market reach of 10 top e-banking and e-commerce sites in India as on 2008. Above statistics from fig2.0 show that banking sector seem to be leading in providing multilingual facilities to users, followed by the travel and tourism sector. A look at the payment features provided show that agricultural sector is lacking behind in providing business features where as travel and tourism and banking portals are proving this feature to their users.

Top Ten languages on the Internet	Internet Users by Languages	Internet penetration by Languages	Growth in Internet (2000-2010	Internet Users (% of Total)	Percentage of web pages	No. of People who speak the language native(In millions)	No. of People who speaks the language as second language (In millions)	Total no. of people speaking the language (In millions)
English	536,564,837	42.0%	281.2%	27.3%	38.2%	340	170	510
Chinese	444,948,013	32.6%	1277.4%	22.6%	2.2%	873	178	1051
Spanish	153,309,074	36.5%	743.2%	7.8%	5.8%	350	70	420
Japanese	99,143,700	78.2%	110.6%	5.0%	7.4%	126	1	127
Portuguese	82,548,200	33.0%	989.6%	4.2%	2.0%	203	10	213
German	75,158,584	78.6%	173.1%	3.8%	10.6%	101	128	229
Arabic	65,365,400	18.8%	2501.2%	3.3%		206	24	230
French	59,779,525	17.2%	398.2%	3.0%	8.8%	67	63	130
Russian	59,700,000	42.8%	1825.8%	3.0%	0.8%	145	110	255
Korean	39,440,000	55.2%	107.1%	2.0%	0.4%	71		71
Top 10 languages	1,615,957,33	36.4%	28.7%	444.8%	100.0%			
Rest of the languages	350,557,483	14.6%	588.5%	17.8%	15.30%			
World Total	1,966,514,816	28.7%	444.8%	100.0%	100.0%			

Compiled from Source (1)

Top e-commerce/banking sites

Domain		Reach (in %)
Irctc.co.in		7.85
Icicibank.com		6.59
Icicibank.co.in		6.10
Hdfcbank.com		5.96
Ebay.in		4.26
Paypal.com		3.53
Citibank.co.in		3.04
Onlinesbi.com		2.80
Amazon.com		2.75
Axisbank.com		2.19
Makemytrip.com		2.10

Figure 2: Comparison of Customer Reach of e-Business sites (source [9])

Table 2.   **Service wise distribution of multilingualism in some selected e-commerce websites**

Sr. No.	Service	Name	URL	Other Language	Payment Feature	Commercial Features
		IRCTC	https://www.irctc.co.in/	57	yes	Train, Hotel , Cab , and Flight Booking
		Bus Ticket Booking	http://www.makemytrip.com	2	yes	Hotel , car ,Bus Booking
1	Tourism & Travel	Rajasthan Tourism	http://www.rajasthantourism.gov.in/	7	yes	Hotel , car, Train Booking and Investment policies
		Maharashtra Tourism	http://www.maharashtratourism.gov.in	65	Yes	Air/Rail Time table , Weather, currency converter, Tender notices ,
		SBI Internet Banking	https://www.onlinesbi.com/	2	Online Trading	Online Banking Facility
2	E-Banking	HSBC	http://www.hsbc.com.br/1/2/portal/pt/	65	Online Trading	Online sales and purchase
		Eurobank EFG	http://www.eurobankefg.com.cy/faqs.aspx?code=ebanking&lang=en-US	3	Online Trading	Online Banking Facility
3	Commodity Sales	Hy Markets	http://www1.hymarkets.com/english/products_comma.html	5	yes	Metals, Oil/Gas, Commodities, Indices , StocksCurrency Converstion
		Flipkart	http://www.flipkart.com	1	yes	Online sales and purchase
4	Medical Tourism	PlanetMEDIX	www.planetmedix.com	8	yes	Parcel services , Tour packages, Medical Facilities
		Online Medical Tourism	http://www.onlinemedicaltourism.com/medical-tourism.html	65	yes	All types of Surgery and Insurance facility
5	Agriculture	Agriquest	http://www.agriquest.info/index.php/agriculture-	57	NO	Information related with Agriculture
		Organic.Lingua	http://www.organic-lingua.eu/	65	NO	Information related with Agriculture

2.2   GROWTH OF TECHNOLOGY

One of the main factors which have leads to growth of E-commerce over the last few years is the growth of the Internet itself. However when we look at the basic statistics the language wise growth has been quite uneven. There have been three distinct phases of Internet development (Table 3) **Web 2.0** as a technology has influenced the growth of e-commerce the most. Introduction of multilingualism was initially hampered because of the non availability of translators. Developments of fonts, the Unicode technology over the past few years have made cross language information dissemination a possibility.

First is Web1.0 which is also known as Business 1.0 where static pages were present user could only view the information no participation is present. Web 2.0 is also called as Business 2.0 as it has remarkably increased the online business by providing highly interactive and participative application. Web 3.0 can be also called as Business 3.0 which basically deals with personalized web portals.

Table 3 the three Important Phases of Parallel Growth of Internet and E-commerce
Compiled from sources [2],[4]

Web 1.0 (1994-2001)	Web 2.0 (2002-2009)	Web 3.0 (2010-onwards)
Content focused	User and crowd focused	Deep personalization
Extensive advertising	Viral Marketing	Viral Marketing
Known as Business 1.0	Business 2.0	Business 3.0
Software as *product*	Software as (free) *service*	Software as (free) *service*
Web Publishing.	*Group Participation*	*The portable personal web focused on the individual life stream.*
Product value is fixed	Product values increases with use and users	Highly-relevant and personalized
Some rights reserved	All rights reserved	
Use of HTML frameset, tables, gif buttons, and html forms sent via email, Java Script.	RSS feeds, AJAX scripts, XML dynamic languages, JSON scripting, HTML5, JQuery	WOL (Web ontology language), RDF (Resource Description Framework), XML, SPARQL
Content Management Systems	Search engine optimization	Real time information delivery directly to the device you are using
Domain Name Speculation	Blogging, wikis, mashups, tagging	Machine to machine communication
Emulator Netscape 1.0, Navigator, IE1 to IE5.5	Firefox, Opera, SeaMonkey, Google Chrome, IE7	Firefox, Opera, SeaMonkey, Google Chrome, IE7 supports private browsing.
Yahoo, AOL, Google, Amazon	Facebook, Twitter, LinkedIn, Group on	iGoogle, Netvibes

3. CASE STUDY

As an illustration we present here a brief case study of one of the prominent e-commerce sites of India, which has shown tremendous growth and business potential. It provides bilingual facilities to the users.

www.irctc.co.on (**Indian Railway Catering and Tourism Corporation**)

IRCTC's Online Passenger Reservation System provides booking facility of Railway tickets online and offers other services like checking reservation status, train schedules, train routes, availability of tickets and cancellation. The popularity rank of irctc website is 433 calculated by **Alexa** The web Information Technology company. In India it is at the 20th popularity rank. We have already seen earlier that as a e-business facility it had the highest customer reach.
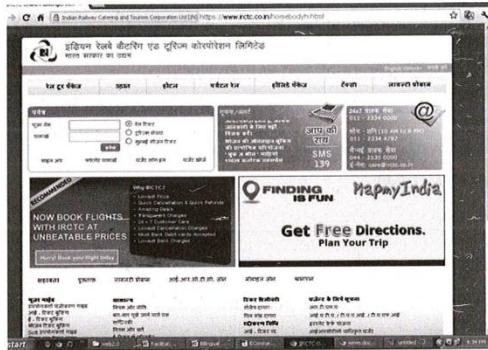
It is a bilingual (Hindi and English) website

Figure 3: A typical Snap shot of the Hindi version of IRCTC portal.

Uses VeriSign is an SSL certificate authority owned by Symantec. ASP.Net Microsoft-Internet Information Server 6.0 based on windows platform.   IRCTC website does not uses any translator kit. As it is bilingual website separate web pages are designed for Hindi and English language along with this separate image are used containing Hindi and English fonts. IRCTC is the most successful E-commerce site in India in the travels and tourism domain as IRCTC recorded Rs 170cr from online reservations in FY12; 35% of total revenue [10].

4.   TECHNOLOGY ASPECTS: THE R OLE OF WEB 2.0 IN PROVIDING MULTILINGUAL FACILITIES

4.1   IMPORTANCE OF FONTS AND UNICODE IN DEVELOPING BILINGUAL/MULTILINGUAL E-COMMERCE WEBSITE

Unicode is the encoding standard which provides support for more than 110,000 characters which supports 100 scripts. Unicode provides a unique number for every character irrespective of the platform, application or language. The Unicode character encoding has been adopted by the many leading players of the industry like Apple, Microsoft, IBM, Sun etc. The Unicode consortium is a nonprofit organization which is dedicated to promote use of the Unicode standard.

4.2   TOOLS AVAILABLE FOR DEVELOPING MULTILINGUAL E-COMMERCE WEBSITE

Google Translate is a free statistical machine translation service provided by Google Inc. to translate a section of text, document, or webpage into another language.

Google Translator Toolkit is a web application designed to allow translators to edit the translations that Google Translate automatically generates. With the Google Translator Toolkit, translators can organize their work and use shared translations, glossaries and translation memories. They can upload and translate Microsoft Word documents, Open Office, RTF, HTML, text, and Wikipedia articles.

Google Translate tool kit supports 65 different languages.

Google Translator Toolkit is supported by Google Translate, a web-based translation service. Google Translator Toolkit can be configured to automatically pre-translate uploaded documents using Google Translate.

The significance of the Google Translator Toolkit is its position as a fully online software-as-a-service (SaaS) that mainstreams some backend enterprise features and hitherto fringe innovations, presaging a radical change in how and by whom translation is performed.

Google translate does not apply grammatical rules, since its algorithms are based on statistical analysis rather than traditional rule-based analysis.

Google does not translate from one language to another (L1 →L2), but often translates first to English and then to the target language (L1 → EN → L2). However, because English, like all human languages, is ambiguous and depends on context, this can cause translation errors.

Because Google Translate uses statistical matching to translate rather than a dictionary/grammar rules approach, translated text can often include apparently nonsensical and obvious errors, often swapping common terms for similar but

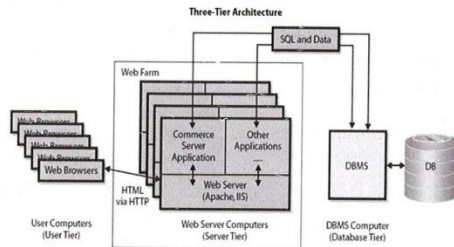nonequivalent common terms in the other language, as well as inverting sentence meaning.

Figure 4 source [3]

Above diagram shows the 3-Tier architecture of E-commerce web sites. At the user end multilingual web browsers are available. At the middle layer web server is present where E-commerce application has published. The third Tier is database tier. The translator kit works in between the web browser and web server.

5. SIMPLE ILLUSTRATION

In this section a simple procedure for quick migration of your business site to bilingual E-commerce site is discussed. Very little code modification, and use of Google translator is what has used here. There could be other options to Google translator, but the gross process will remain similar.

HOW TO MIGRATE YOUR BUSINESS WEBSITE TO OTHER LANGUAGE

METHOD 1

For developing version of any e-commerce website in another language is to copy all files to a new folder (keeping the filenames) and translate content and meta data. As the filenames are same, all links will continue working fine. There may be need to create a few new language specific images, or update the reference to some site resources (images, css, java script files etc.) This is quick solution and may be appropriate for a small static site with 2 or 3 languages.

METHOD 2

Incorporating Google Translator in website

Got to website https://translate.google.com/manager/ click on 'Add to website button' login to Gmail account. Enter the name of your website to which you want to add Google translate free translator plug-in. Select original language of your website. Choose the translation languages we can add all 64 languages or we can choose the languages of our interest. Select the display mode of the Google translate tool. After performing all the above steps, Google translate manager will automatically generate a code for the website to translate. Copy and paste the following code snippets onto every page you want to translate<meta name="google-translate-customization" content="cffc3fc6c2e8882b-f571b51687d08e7b-g6bd9a8de4b8c4696-f"></meta>

Place this meta tag before the closing </head.

```
<meta name="google-translate-customization"
content="cffc3fc6c2e8882b-f571b51687d08e7b-
g6bd9a8de4b8c4696-f"></meta>
```

Place the following code where you'd like to display the Website Translator plugin on your page

```
<div id="google_translate_element"></div>
<script type="text/javascript">
function googleTranslateElementInit() {
  new google.translate.TranslateElement
({pageLanguage: 'en', layout: google.translate.
TranslateElement.InlineLayout.SIMPLE},
'google_translate_element');
}
</script><script type="text/javascript"
src="//translate.google.com/translate_a/element
.js?cb=googleTranslateElementInit"></script>
```

After adding the above code you should see a language selector on your page.
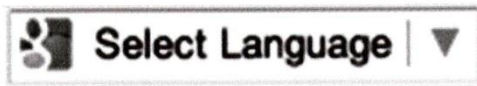
Figure 5 Google Translator tool

Figure 6

6. CONCLUSION

We have shown in this article, with adequate evidence that

- On the business front

- there is strong need of the multilingual E-commerce sites for expanding the e-market.

- Multilingual E-commerce will help in better Customer retention, and better service

- Statistics indicates that there is strong and encouraging E-commerce following in India.

- On the techno front

- Availability of fonts and Unicode as a coding system has facilitated development of multilingual E-commerce sites.

- Different translator kits like Google translate, BabelFish, FreeTranslation and World Lingo provides translation of the web pages.

- Browsers supporting multilingual fonts are available

- We have also demonstrated a easy and quick way of migrating a business site from one language to another language.

7. REFERENCES

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