

Chapter 6

Automatic Language Translation: An Enhancement to the Mobile Messaging Services

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ABSTRACT

In this paper, the authors demonstrate that language diversity imposes a significant barrier in message communication like Short Messaging Service (SMS). SMS and other messaging services, including Multimedia Messaging Service (MMS) and e-mail, are widely used for person-to-person and Business-to-Consumer (B2C) communications due to their reach, simplicity and reliability of delivery. Reach and service delivery can be further enhanced if the message is delivered in the recipient's preferred language. Using language translation software and a database server, the authors show that the messages can be delivered as per language preference of the recipient irrespective of the language of the original message. They demonstrate the proposed mechanism can deliver a large number of services, such as education, health care management, notification in emergency situations, news and weather reports, to those who are currently not able to access them due to language barrier.

INTRODUCTION

Messaging services currently contribute a significant proportion of the mobile operator's revenue worldwide; 5-15% for developing and 10-20% for developed countries (Grzybowski & Pereira,

2008). The messaging service can be broadly classified into two categories; textual and multimedia messages (e.g. Multimedia Messaging Service-MMS). Textual messages can be further divided into; 1) short messages such as Short Messaging Service (SMS), Enhanced Messaging

DOI: 10.4018/978-1-4666-1954-8.ch006

Service (EMS) and Instant Messaging (IM), and 2) e-mail. SMS is widely used due to its simplicity, interoperability, accessibility and reliability in delivery. SMS services can be accessed with a PC connected to the internet as well as with a mobile phone. Currently more than half of world's population has access to mobile phones and global facilities (ITU, 2009). An SMS between users who are connected to different service providers will be delivered even though they may be using different technologies (e.g. GSM, CDMA, 2.5G or 3G). In a similar way SMS from computer systems to individual users (e.g. news, weather reports and commerce application) and individual users to computer systems (e.g. voting) are used on a wide scale.

SMS subscription (i.e. the number of people who use SMS) and usage intensity varies widely across countries but little research has been done in identifying the cause of dissimilar growth among countries of similar economic and social background. One possible reason could be that data related to the SMS subscription and usage is not readily available. A large number of organizations (e.g. ITU) publish data on fixed phones, mobile phones and internet for different countries but no such data exists for SMS subscription and use. The data published by mobile operators is also not consistent since most operators do not provide the data related to usage volume. Some operators provide bulk usage volume and others provide bulk revenue from all messaging services (i.e. SMS, IM and MMS) and therefore analysis becomes complex and results may be inconclusive. In the past, researches have investigated the factors affecting the growth of SMS mostly based on survey conducted by face-to-face or telephonic interview. These surveys indicate that the charge and charging mechanism (He, 2008; Turel et al., 2007), social influence (Lopez-Nicolas et al., 2008), entertainment (Kim et al., 2008; Leung, 2007; Li et al., 2005; Wei, 2008), commerce applications (Kong & Luo, 2006) and discursive use

(He, 2008) of the service are the major factors affecting the growth of SMS.

The SMS is used for person-to-person (P2P) communications, entertainment (e.g. news, jokes), health care management (Fjeldsoe et al., 2009), education, vehicular traffic management and notification during extreme situations e.g. SARS in China and Tsunami in South East Asia (Gordon, 2007). A large number of commerce applications such as banking, sale of goods and services (Merisavo et al., 2006), advertisement and auction are regularly delivered using SMS. Due to its wide accessibility and applications both for person-to-person (P2P) and business-to-consumer (B2C) messaging, communication through SMS can potentially surpass all other modes of communication. This can be possible if all people can communicate to each other without any barrier. However, not all people understand the same language; a message delivery in the wrong language may be meaningless. To make it acceptable to the recipient, the message should be delivered in a language which the recipient can understand.

Based on case study past researches indicate that language diversity has a significant negative impact on the growth of SMS. Yan et al. (2006) observed that language diversity is one of the factors behind the dissimilar SMS usage between the China mainland and Hong Kong. Zainudeen et al. (2006) observed that lower SMS use in India and Sri Lanka compared to Indonesia and Philippines could be due to fact that most people (in low income groups) in India and Sri Lanka are not familiar with the Latin Script (i.e. English) used in SMS communication.

We compiled data about SMS usage (Table 2) as of December 2008 for a few selected countries to investigate whether language is a barrier for the growth of SMS. The data indicates that SMS usage is greater for those countries where most of the people speak the same language (e.g. the UK, USA and China) compared to those countries where people speak different languages (e.g. Switzerland,

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