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Identifying Requirements of Agricultural Mobile Marketing from Experts' Perception

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Abstract

This study was conducted to identify requirements of agricultural mobile marketing. Using the factor analysis, the requirements have been classified into seven factors (Cultural, Technical and infrastructure, Social, Educational-extensional, Legal, Informative, and Economic) from experts' perception. Several suggestions have been made based upon these findings.

Keywords: *Information and Communication Technologies (ICTs); mobile marketing; requirements*

1. Introduction

Agricultural marketing is the critical link between agricultural production and farm sector revenue percolating to the farmers. One of the most important problems of agricultural marketing can be traced to lack of information. For instance, sellers may not be able to identify sources of commodities supply. Market information is essential for producers, traders, consumers as well as government. The use of information and communication technologies (ICTs) is becoming progressively more widespread throughout various sectors including education, business as well as agriculture. Electronic marketing can be considered a major pathway for future strategies related to marketing and efficiency improvement in the agro-food chain. Electronic marketing (e-marketing) is described as "the use of Internet and related digital information and communication technologies to achieve marketing objectives" (Gupta, 2007). Following are some of the benefits of e-marketing for small businesses: Wider prospect reach, Cost-effective approach, Reduction in costs through automation and use of electronic media, 24/7 marketing, Personalized one-on-one marketing, Increased interactivity, and Increased ability to track results. Wood (2003) stated that: (1) wireless technologies, in general, are more cheaper than desktop computers and they can decrease digital divide in developing countries; (2) The "text messaging" (SMS) has been growing exponentially and becomes more and more popular for cell phone holders; and (3) the relatively low costs of cell phone along with several reasons make it as a popular device for people in the rural areas. Yunus (2009), who wined the Noble prize, stated that donate of a cell phone to a poor person can be the quickest way to help him/her to get out from poverty.

As an affordable and accessible means of communication, rural communities are realizing the potential of mobile telephony to create economic opportunities and strengthen social networks. Mobile telephony effectively reduces the "distance" between individuals and institutions, making the sharing of information and knowledge easier and more effective. The mobile telephone is no longer just an audio communication tool but capable of providing additional integrated functions. Yet, mobile telephony, like all technologies, needs requirements. The requirements of mobile marketing identified in this study, would be

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brought to the knowledge of the agricultural planners, practitioners, policyholders and extension technology specialists in order to achieve a realistic mobile marketing program.

2. Prior Studies

Many studies have identified important requirements dealing with a mobile marketing system. Kumar (2010) implied to 3 major gaps of e-agriculture in Indian rural areas. It consists as following: spatial gap, literacy gap and income gap and the major barriers for using ICT at the agricultural level were lack of knowledge about appropriate technology, uncertainty about market for agricultural produces, lack of storage facilities (Kumar *et al.*, 2010).

Wen (2007) studied electronic commerce system for selling agricultural products with three subsystems as following: financial subsystem, ordering subsystem to collect information of products and administration subsystem which supervise selling and buying process.

Hawaii Department of Agriculture (2006), in "feasibility of a farmer – based E-commerce market" mentioned to factors like farmers' computer skills, internet structure and the way of delivering the product to the market and design of a website.

Bauer *et al.*, (2005) mentioned entertainment value as well as information value as the strongest drivers of the acceptance of the mobile phone as an innovative medium for advertising content communication.

3. Research Design

Questionnaire items were developed based on the previous literature. The questionnaire was revised with the help of experts with significant experience in marketing to examine the validity of the research model. A 5–point Likert scale ranging from 1 as strongly disagrees to 5 as strongly agree was used for the measurement. A pretest for the reliability of the instrument was conducted with 15 experts randomly chosen from the target population. The requirements were summarized into one single variables R. Then, the Cronbach's alpha from those variables was computed. The Computed Cronbach's alphas for R., is 78.6, which indicated the high reliability of the questionnaire.

The research population included all the experts in Jihad ministry in Tehran (N=122). Because of small population, a census study was employed. The initial and follow-up mailing generated 118 useable responses from farmers resulting in a response rate of 96.7%.

4. Results

Table 1 represents descriptive statistics for some variables in the target population.

Table 1. Demographic Profile and Descriptive Statistics of Experts

Gender	Male (70.3)	Female (29.7)
Work experience	Mean= 12.2	S.D=7.5
Age/year	Mean= 39.9	S.D=16.3
Major	Mode=Agricultural extension and education (11.3%)	Agricultural economics (10.3%) Horticulture (9.3%)
Level of education	Bachelor (75.3%)	Master (19.6%)

Implementation of factor analysis summarizes all requirements into 7 factors given by Table 2.

Factor one is composed of the following requirements. Make culture to use cell phone in marketing, belief in cell phone as a marketing tool, positive attitude to marketing via cell phone, belief in information via cell phone, Make culture to use cell phone in agricultural marketing, reliance on cell phone traders instead of face to face marketing. So it was named cultural factor.

Factor two is composed of the following requirements. Big size of cell phone screen to navigate the content, increase of SMS (Short Message Service) characters, providing services like MMS (Multimedia Messaging Service), connection of mobile phones to web. So it was named technical infrastructure factor.

Factor three is composed of the following requirements. Organizing farmers as a caste, farmers' participation, a system to communicate with local markets, communicate with input dissemination organization. So it was named social factor.

Factor four is composed of the following requirements. Educational classes in mobile marketing, a database Inclusive inputs, weather, diseases information, educational courses about SMS marketing, farmers' empowerment via SMS marketing, an extension agent to solve mobile marketing problems and issues. So it was named Educational-extensional factor.

Factor five is composed of the following requirements. Stability in government policies in regarding agricultural marketing, Tax Exemption for mobile marketing users, supportive regulations in for mobile marketing users. So it was named legal factor.

Factor six is composed of the following requirements. Information about government's policy, information about market, information about cultivated area, information about customers values varieties, information about supply and demand agricultural products. So it was named informative factor.

Factor seven is composed of the following requirements. Private sector investment in mobile marketing, economic supportive facilities (*e.g.*, interest free loans), mobile marketing investment, budgeting to ICT sector. So it was named economic factor.

As one may observe in Table 2, 69.9% of total common variances are explained by these seven factors. The main variance has been explained by cultural factor.

Table 2. Factor Analysis of Mobile Marketing Requirements

Factor name	Eigen value	Explained common variance by factor
Cultural	4.81	16.8
Technical and infrastructure	4.15	14.47
Social	3.06	10.69
Educational-extensional	2.74	9.58
Legal	2.52	8.79
Informative	1.53	5.34
Economic	1.22	4.26

5. Discussion and Conclusion

The first most important factor pointed out by experts is cultural factor. Most of the elements of cultural factor can be provided by an educational course. Such a training course should target from the micro level (farmers) to macro level (planners and policy holders). According to Palen *et al.*, (2000), deployment of mobile telephony varies noticeably internationally and even among western countries. In general, usability studies aim to make technology more useful. Cultural usability goes further and aims to make technology fit in with the user's lifestyle (Sun, 2004). In order to be effective, designers therefore have to understand and be aware of the cultural priorities and the value system of users, *i.e.*, they

must identify factors that are relevant and sensitive to cultural differences. Fitzgerald (2004) presents four models used for managing cross-cultural software:

•Cultural dimensions, measuring different cultures according to a number of cultural variables or factors.

•Cultural markers, using cultural dimensions in measuring interface design elements that are prevalent and possibly preferred within a particular cultural group.

•Cultural behaviors, measuring on-line behavior of web site users in terms of a four-factor model.

•Activity theory, viewing people's activities as 'an object-oriented and tool-mediated process in which actions are mediated through the use of tools and languages to achieve a transformative objective'.

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