



Challenges and Opportunities for ICT Initiatives in Agricultural Marketing in India

DEVEN J. PATEL and KAPIL K. SHUKLA

¹Department of MCA, Atmiya Institute of Technology and Science, Rajkot – 360 005 Gujarat (India).

²Department of MCA, B.H. Gardi College of Engineering & Technology, Anandpar – 361162 Gujarat (India).

(Received: November 16, 2014; Accepted: December 12, 2014)

ABSTRACT

Agriculture is different from industry and plays a significant role in the economic development of a nation. India's prosperity depends upon the agricultural prosperity. There are many kinds of agricultural products produced in India and the marketing of all these farm products generally tends to be a complex process. Agricultural marketing involves many operations and processes through which the food and raw materials move from the cultivated farm to the final consumers. The conventional approach of extension services have not been able to resolve the challenges posed by various factors in Indian Agriculture marketing. The paper at length discusses about the challenges and the opportunities for ICT mediated services for agricultural marketing.

Key words: Agricultural Marketing, ICT, ICT in Agricultural Marketing, Challenges for ICT in Agricultural Marketing.

INTRODUCTION

Improved agricultural production is the major weapon in the fight against world hunger, improving rural livelihood and increasing economic growth. Agriculture is one of the most important sectors of nation, and could benefit tremendously with the applications of ICTs especially in bringing changes to socio-economic conditions of poor in backward areas. Agriculture constitutes a major livelihoods sector and most of the rural poor depend on rain-fed agriculture and fragile forests for their livelihoods. Farmers in rural areas have to deal with failed crops and animal illness frequently and due

to limited communication facilities, solutions to their problems remain out of reach (World Bank, 2009). However, connectivity technologies have been the greatest achievement in ICT and have unleashed new functionalities for the business community [1].

There are many kinds of agricultural products produced in India and the marketing of all these farm products generally tends to be a complex process. Agricultural marketing involves many operations and processes through which the food and raw materials move from the cultivated farm to the final consumers [9].

Agricultural marketing covers the services involved in moving an agricultural product from the farm to the consumer. Numerous interconnected activities are involved in doing this, such as planning production, growing and harvesting, grading, packing, transport, storage, agro and food processing, distribution advertising and sale. Some definitions would even include “the acts of buying supplies, renting equipment, (and) paying labor”, arguing that marketing is everything a business does. Such activities cannot take place without the exchange of information [9].

Hence, the proposed research aims to study the past and present major ICT initiatives in agriculture marketing in the study area, the utilisation, the factors influencing the level of awareness and benefits availing from ICT application in agriculture marketing.

Importance of Agriculture Marketing

Taking into consideration the importance of agricultural marketing system in developing economy, with following objectives:

- To analyze the transaction of agricultural crops through rural markets.
- To highlight the price structure of different crops in rural markets.
- To examine the composition and structure of sellers and traders engaged [2].

Challenges for ICT

There are several challenges involved in marketing of agricultural produce. There is limited

access to the market information, literacy level among the farmers is low, multiple channels of distribution that eats away the pockets of both farmers and consumers. The government funding of farmers is still at nascent stage and most of the small farmers still depend on the local moneylenders who are leeches and charge high rate of interest. There are too many vultures that eat away the benefits that the farmers are supposed to get. Although we say that technology have improved but it has not gone to the rural levels as it is confined to urban areas alone. There are several loopholes in the present legislation and there is no organized and regulated marketing system for marketing the agricultural produce [3].

Numerous factors could influence ICT in Agriculture Marketing organizations and can be grouped into following categories: Adoption, access to IT, demographic, IT training/education, perception, trust, and time.

Adoption

In addition to individuals having access to a new technology, adoption must also occur, which means individuals accept the innovation as valuable and use it. It is possible for adoption factors to fit into more than one category [4].

Access to IT

In the case of ICT, access to the technology means an individual must have access to equipment. The category “access to IT” would not only include the use of a computer with IT ability, but would also

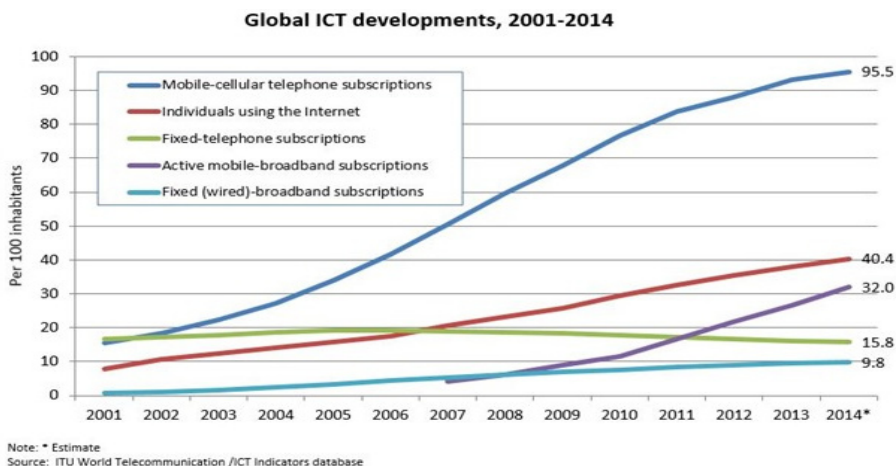


Fig. 1: Global ICT development estimates for 2014 from ITU

include the ability to upgrade computer hardware and software to facilitate IT use. The price of needed computer equipment and the expense of Internet use are also related to access to IT. It is predicted that the higher the level of access to IT, the higher the level of IT use by an individual.

Demographic

The demographic category includes adoption factors such as age, education level, gender, and income level. It is hypothesized that factors in the demographic category will not significantly influence IT adoption and use. IT use will be higher for younger, more educated individuals, 1997 survey results suggest that demographic factors have little influence on IT adoption and use. This may reflect that demographic factors may influence the decision to adopt a new technology, but once that decision to adopt is made, demographic factors may have little influence on use [5].

IT Training/Education

Another category of ICT factors is IT training/knowledge. This IT adoption factor can be measured with variables such as type of IT training, days of IT training, and the level of knowledge on IT use. It is hypothesized that as the quality and level of IT training increases, the use of IT will also likely increase.

Perception

An important factor influencing the adoption of any new technology is an individual's perception of that technology. It is hypothesized by this research that one of the key perception aspects influencing the adoption of IT is the level of trust that the potential adopter has in the IT system and in those who use IT. Trust can be defined as "an individual's optimistic expectation about the outcome of an event". There are different aspects of trust related to IT [6].

Trust

Trust proves to be a difficult variable to measure. Factors included in the trust category include an individual's perception of the ease of use of IT as well as the benefit of IT. In this study, trust is measured by variables such as helpfulness of IT

for work-related communication, problem solving ability, and banking and shopping via the Internet. Some individuals, either due to their background or current environment, have a fear of IT or feel that it is difficult to use. It is hypothesized that an individual will use IT more if they have a positive perception or high trust level in IT.

Time

The final IT adoption category proposed by this research is the passage of time. It is hypothesized that individuals will increase their use of IT over time, as access to IT becomes more commonplace. The same group of people may be surveyed twice to evaluate their changes in IT use over time [10].

Opportunities for ICT in Agriculture

It is to be mentioned that the ICT offers a variety of programs both for the social development and the economic development. An assessment of the impact was felt essential so as to determine whether there is any significant change on the part of the farmers before and after their ICT application in Agriculture. It is to be noted that a change which a farmer does not possess before ICT application in Agriculture may take place in the farmer after his ICT Application in Agriculture [7]. The researcher, through his observations and interaction with the farmers, has identified eight economic and social traits which the farmers may or may not possess before their ICT application in Agriculture. As such, the economic and social traits for the purpose of the study include productivity improved, avoiding buying on credit, comfortable life, reduction in poverty, house modified, liberal spending, change in the life style and maintenance of children improved [8].

The Indian Govt. is being made a remarkable achievements especially in the area of agriculture by giving various facilities to the farmers in which the ICT services is one among which is helping the farmers to understand the modern cultivation methods, availability of agriculture inputs, irrigational sources, availability of pesticide and fertilizers for increasing the production and productivity of crops [11].

Important factors directly related to ICT use in the area include level of education, farming experience, flock size, access to credit, level of income and membership of organization [12].

Fig. (1) Indicating ICT development has been trending now and likely in the future as per ITU. The ICT development index prepared by the International Telecommunications Union (ITU) ranks a total of 157 countries on the basis of ICT usage, access and skills. IDI is a composite index that combines 11 indicators, classified under the three sub-indices of access, use, and skills, into one measure that helps monitor and compare developments in ICT across countries [13].

CONCLUSION

As education and information can greatly be improved through the use of the ICT, we need

to think about bringing in combination of players from inside and outside agriculture system. There is no doubt that in any marketing there is a motive to the benefit in question and at the same time, marketing is based on certain values, principles and philosophies such as offering just and fair prices to farmers who work hard to style. The necessary reforms, along with adequate mechanism of price formation through regulated market system will help streamline and strengthen agricultural marketing through ICTs. In order to avoid the isolation of small farmers of the benefits of agricultural products they need to be integrated and informed market knowledge and concepts fluctuations, supply and demand, which are the core of the economy. Agricultural marketing strategies using ICTs can be bring innovative and creative opportunities for India.

REFERENCES

1. A Bharadwaj, O.A.E. Sawy, P.A. Pavlou and N. Venkatraman , Digital business strategy: Toward a next generation of insights, *MIS Quarterly*, **37**, 471-482 (2013).
2. Journal of Economics and Sustainable Development www.iiste.org ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online) **3** (2), (2012).
3. Asia Pacific Journal of Research Vol: I Issue XVII, September 2014 ISSN: 2320-5504, E-ISSN-2347-4793.
4. Mahajan V., E. Muller and F.M. Bass. New Product Diffusion Models in Marketing: A Review and Directions for Research. *Journal of Marketing*, **54**: 1-26 (1990).
5. Batte M.T., E. Jones, and D. Schnitkey. Computer Use by Ohio Commercial Farmers. *American Journal of Agricultural Economics*, **72**: 935-45 (1990).
6. Hosmer L.T. Trust: The Connecting Link Between Organizational Theory and Philosophical Ethics. *Academy of Management Review*, **20**: 379-403 (1995).
7. Anwasha Banerjee. The ICT in Agriculture: Bridging Bharat with India. Students' Research Global Media Journal – Indian Edition 2(2) 1-16 (2011).
8. Venkatesh J, Sekar, Aarthi C, Balasubramanian M, Thenmozhi S and Balasubramanie P. Role of ICT in Distribution of Knowledge in Agriculture Sector - Its Efficacy and Scope. *The International Journal of Computer Science and Applications (TIJCSA)* **1**(5) 1-8 (2012).
9. A.Vadivelu and B.R. Kiran2 (2013): Problems And Prospects Of Agricultural Marketing In India: An Overview, *International Journal of Agricultural and Food Science*, **3**(3): 108-118 (2013).
10. Chukwunonso Franklyn and Aisha Tukur: Problems And Prospects Of Adopting Ict In Agriculture: Some Comments, *African Journal of Agricultural Research and Development*, **5**(3), 39-47 (2012).
11. Sami Patel and Sayyed I.U(2014) :Impact Of Information Technology In Agriculture Sector, *International Journal of Food, Agriculture and Veterinary Sciences*; **4** (2) May-August, pp. 17-22 (2014).
12. Henri-Ukoha, A, C. Chikezie, Osuji, M.N, Ukoha, I. I: Rate Of Information Communication Technology (Ict) Use: Its Determinants Among Livestock Farmers In Ukwa West Lga, Abia State Of Nigeria.,

- International Journal of Agricultural and Food Science* 2012; 2(2): 51-54 (2012).
13. Muhammad Bashir : ICT Development Index (IDI) Ranking 2013 for Asia and Pacific Countries and Evaluation of ICT Subindexes and Indicators for Pakistan, *International Journal of Advanced Research*, 1(10), 598-610 (2013).