

Chapter 24

Mobile Networks and Indian Agricultural Sector

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ABSTRACT

Information dissemination in agricultural sector for its growth using information and communication technology (ICT) as a tool is need of the hour. This can be achieved using information systems. ICT benefits are helpful in exchange and dissemination of information among farming stakeholders. By using the latest tool of mobile technology, farmers can get the current information related to their farming jobs around the clock and at any location, as the mobile network have touched every part/location of the India. Using the features of the mobile-phones like GPS etc. one can get the localized information. Only need is to structure the abundant information available across the various organizations. So, a mobile based agricultural information system framework 'mAgIDS' has been proposed employing the hybrid mobile application architecture approach. Client-server architecture using the location Application Programming Interface (API) has been proposed. Inference mechanism of the system has implemented on the basis of improved fuzzy rule promotion technique.

INTRODUCTION

Agriculture and its related functions are indisputably the largest source of livelihood to large number of Indian rural population. Agriculture sector accounts for approximately 14% of India's Gross Domestic Product (GDP) and 11% of its export. 68.8% of Indian population lives in rural areas. Income of 31.55% of this rural population depends upon agriculture and its related activities. Also, agricultural produce is a source of raw material for a large number of industries. Average rate of agricultural growth in India was 2.38% during 10th five year plan (2002-07) that rose to 3.6% per annum during 11th five year plan (2007-12). In 2012-13, the first revised estimate of agricultural growth has been declared at 1.42% per annum. In advance estimates for India-Macro Economic survey for 2013-14 (Annonymous, 2014), 4.64%

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of agricultural growth has been expected to be contributed in Indian GDP. It is important to increase growth of agriculture production (Government of India, 2013) using technology to achieve targeted 8% GDP contribution during 12th five year plan (2012-17) and to meet escalating demands for food due to high population growth, increase in per capita income *etc.* To improve the quality and quantity of agricultural produce, a tremendous amount of efforts are being put by various organizations like Indian Council of Agricultural Research (ICAR), Central and State Agricultural Universities (SAUs) and their Regional Research Stations (RRSs), Krishi Vigyan Kendras (KVKs) along with other public and private organizations. It is very important for these organizations to disseminate appropriate, precise and latest information to farmers for timely action to improve the agricultural output. There is a greater need to lay emphasis on the dissemination of scientific information from laboratory and test fields to its actual stakeholders using latest technological tools. These institutions work dedicatedly for the welfare of agricultural community but their initiatives have been usually criticized for their limited coverage, sustainability and its effect on agricultural community. Therefore, it is required that agricultural inputs should be timely disseminated to its appropriate quarters using latest information technological tools provided relevant quarters are ready to adopt these tools required for information transfer. Improvement of agricultural and rural development is being focused through emerging field of E-Agriculture using improved information and communication processes. Print and electronic media such as news-papers, pamphlets, libraries, televisions and information centers (like Kissan Call Centers *etc.*) are playing very important role in providing information to the farmers. These information centers are basically providing information to farmers using the available resources to them. Improved data management for better decision-making can be achieved by the utilization of information with appropriate information and communication technology (ICT). Enhanced focus on research planning, monitoring and evaluation lead to better research and hence it can provide more benefits to farmers. For providing online information to distantly located stakeholders ICT can be used in breaking the blockades of these remote places, which is the major concern for information dissemination.

Information Systems

An Information system (IS) uses Information Technology (IT) to sustain various operations and management of people's activities. (Silver, Markus, & Beath, 1995) discusses two views on IS namely IS-centered view comprising of hardware, software, procedures, data and people, and managerial view that incorporates people, business processes *etc.* ISs are specifically designed to enable individuals to execute these tasks for which the individual understanding is not so proficient, such as, handling bulk amount of information, performing scientific calculations, and controlling many parallel processes. Thus, such systems are very helpful for providing the best and up to date information to associated stakeholders. IS acts as an interface between individuals, algorithmic processes, data and technology (Information System, 2011). It also refers to the manner in which individuals interact with technological tools in support of assembly of allied, planned actions or tasks that can fabricate a particular service or product or serve a specific goal for stakeholders. It can be envisioned as flowchart of a sequence of events to achieve a certain product or service. The activities of an IS are committed to process information by means of capturing, communicating, keeping, recovering, handling and exhibiting the information. As such, IS inter-relates with data and activity systems. These are a type of communication systems in which data is represented and processed to generate information which is useful to the end users. Human decision-

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