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IKHEDUT: SUCCESSFUL CASE STUDY OF MOBILE APP FOR DEVELOPMENT OF FARMERS

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Abstract

Mobile communication is an innovation of 21st century. Government of India has developed many mobile apps for empowerment of farmers. Ikhedut is also an initiative started by Government of Gujarat. They have developed 113 mobile apps viz; soil health card, tomato, animal husbandry, cotton farming, peanut, banana farming, animal food, farmer-expert question answer, micro and macro nutrients for crops, litchi, mango farming etc. These apps are very much fruitful for the farmers as farmer can take the information at right time n right place. Present paper aims to discuss about the mobile apps and successful case study for farmers empowerment through mobile apps.

Keywords: Mobile apps, farming, Ikhedut.

Introduction

Mobile phone is an innovative communication technology for the development of rural people. (Sharma, 2016). Various research studies showed that in India majority of rural people are using mobile phone for taking information, knowledge and education on various aspects. (Rathore and Sharma and 2012). Mobile phones have an especially dramatic impact in developing countries substituting for scarce fixed connections, increasing mobility, reducing transaction costs, broadening trade networks and facilitating searches for employment and new markets. Mobile telephones provide market links for farmers and entrepreneurs and are mainly used for communication and information services. "Much of the voice traffic over the cell phones is commerce directed. Access to agricultural market prices, access to

agricultural trade information, facilitation of remittances from foreign workers, information on work opportunities using the phone can reduce substantial travel costs" (Richardson, 1999).

Mobile users in India: According to GSMA, the association of mobile operators, number of mobile phone users globally will surpass five billion by the end of year 2017. With populations in Asia and notably India, on the rise, the number, which stood at 4.8 billion a year ago, should mushroom to 5.7 billion, or three quarters of the world's population, by 2020. The statistic shows the number of mobile phone users in India from 2013 to 2019. At the end of 2017 the number of mobile phone users in India is expected to rise to 730.7 million. In this same year the number of smartphone users in India is predicted to reach 340 million and could reach almost 468 million by 2021.

Brands of smartphone: According to the report of market research firm Counterpoint, the smartphone user base in India with Chinese brands dominating the market crossed 300 million as shipments grew 18 percent annually in 2016 compared to the global smartphone market which grew only three percent, a new report said on Tuesday. In the fourth quarter of 2016, Chinese brands such as Vivo, OPPO, Lenovo and Xiaomi contributed 46 percent of the total smartphone market up from 14 percent a year ago. Apple captured 10th position in the smartphone rankings during fourth quarter of 2016 but led the premium segment (above \$450) with 62 percent market share.

Mobile Agriculture/m-Agri: Mobile Agriculture supports actors along the agriculture value chain through the use of mobile technology. Mobile technology covers a broad range of devices and the sub-categories include voice, data, network and connectivity technologies. M-Agri is a subset of e-agriculture. The introduction of mobile technology and portable, wireless devices has led to the creation of innovative services and applications that are used within the agricultural value chain in developed and developing countries. In developed markets where mechanisation is more advanced and the agricultural labour force is significantly smaller than that of many developing countries, mobile agriculture applications tend to be implemented further up the value chain, for example with processors or consumers. In developing countries where a large proportion of the workforce is employed in agriculture, mobile technology is more commonly used to deliver services for producers and traders. Mobile technology provides following information: [1] Market intelligence information. [2] Trading facilities. [3] Weather information [4] Peer to peer learning [5] Financial services: payments, loans, insurance [9] Advisory/ extension services: applications that use mobile technology to deliver or retrieve agricultural/agronomy information and advice. [10] Geospatial applications: Applications enabling data and information related to geography and space to be managed, processed, and visualized. They contribute to land and water use planning, natural resources utilization, agricultural input supply and commodity marketing, poverty and hunger

mapping, etc. Embedded ICT in farm equipment & processes: Applications that enable greater efficiencies in farm equipment and agricultural processes, and traceability in agricultural products' transport and marketing through mobile. Agricultural news: applications that provide news on agriculture related subjects.

Mobile phones: Mobile phone has following advantages: Are owned by billions of people. Provide delivery in an instant, more convenient way. Can deliver personalized information to individual owners. Are cheaper to deploy. Provide other functions such as voice communication. Information and communication technologies (ICTs) are playing a vital role in connecting communities in national, regional and global development. ICT is being applied to fight poverty, promote economic growth and support development efforts in the developing world. Most of these efforts are based on the international communication policy debates which emphasize that creating digital opportunities is not something that happens after addressing 'core' development challenges; it is a key component of addressing those challenges in the 21st century (G8, 2002).

Mobile social networking: Mobile social networking is a social networking platform where individuals with similar interests converse and connect with one another through their mobile phone and tablet. Much like web-based social networking, mobile social networking occurs in virtual communities. Mobile and web-based social networking systems often work symbiotically to spread content, increase accessibility, and connect users, consumers are increasingly spending their attention on native apps compared to web browsers.

Mobile Apps: M-apps are software designed to take advantage of mobile technology, enabling the collection and transmission of data for economic and social activities whether for commercial, administrative or entertainment purposes (Prasad, 2014). Moreover, m-apps are not necessarily associated with specific access devices but focus on providing information and facilitating activities. M-apps can be developed for technology besides mobile phones. For example, in one of the case studies conducted for this report, e-Dairy: an agricultural

extension service offering timely data on cow insemination in Sri Lanka was designed for touch screens, which are larger and less mobile than cell phones. The touchscreens are at fixed locations, and though their monitors can provide more information than the smaller screens on mobile phones, mobile phones have several advantages over less mobile (or fixed location) devices such as touch screens. Government has initiated many apps for development of farmers.

Ikhedut: A new Mobile app initiative by Government of Gujarat: ikhedut is an online portal started by Agriculture & Co-Operation Department, Government of Gujarat for online subsidy process. Farmers can easily register on this portal get benefits of Gujarat Government subsidy schemes. ikhedut online application is started for Agriculture, Horticulture, Livestock (Animal Husbandary) and Fisheries Schemes for the year 2015-16. Previously it was known as ikisan. Since Feb 2015 ikisan website ikisan.gujarat.gov.in is replaced by new online portal ikhedut.gujarat.gov.in. ikhedut Online Registration process is very easy process. In this first step is [1] Go to website ikhedut.gujarat.gov.in. [2] Click on link 'રોગ-૧૬ માટેની વિવિધ યોજનાઓમાં અરજી કરો'. [3] Select your scheme and fill the form. [4] After completing the form take a printout & submit to your Gramsevak and take a receipt form gramsevak (duplicate copy for your reference signed by gramsevak). After that Farmers can Check ikhedut Application Status with following some steps: [1] Go to official website and click on link 'Check Application Status' or '[Click Here](#)' to go that page directly. [2] Select a scheme from drop-down list for which you want to check application status. [કયા પ્રકારની યોજનાનું સ્ટેટસ જોવા માંગો છો?] [3] Selection 'Application Number' or 'Receipt Number'. [તમે અરજીનું સ્ટેટસ કઈ રીતે જોવા માંગો છો?] [4] Enter the application/receipt number and captcha number (બાજુમાં બતાવેલ કોડ નાંખો). [5] Click on button to get your ikhedut Application Status online.

AAU, Soil Health Card App: Anand Agriculture University is the first Agricultural University of Gujarat who has developed

mobile apps for the empowerment of farmers. AAU, Anand has developed Soil Health Card app for farming community under the supervision of Hon Vice Chancellorji Dr. NC Patel. We can say that this app is an endeavor to map soil nutrition of Anand, guided under the grand vision of Hon Vice Chancellorji Dr. NC Patel. SHC mobile app is an android mobile phone application for Soil Health Card. This application is easy to operate and captures Latitude and Longitude automatically when "Location" is on. The farmer details, land details, crop details and fertilizers details can be entered using this mobile app. This mobile app works the guideline of Pradhan Mantri Soil Health Card Scheme. Pradhan Mantri Soil Health Card Scheme is meant to give each farmer soil nutrient status of his holding and advice him on the dosage of fertilizers and also the needed soil amendments, that he should apply to maintain soil health in the long run. This app helps to provide Soil Laboratories and Soil Testing Centers a platform to regularly digitally update Farmer's Soil Samples, results of which can be received by the farmer on their Mobile App. Regular dosage and amendments advice can also be provided through this app, which will be timely read by the farmer and applied on his farms. Soil Health card is a printed report that a farmer will be handed over for each of his holdings. It will contain the status of his soil with respect to 12 parameters, namely N,P, K (Macro Nutrients), S (Secondary-Nutrient), Zn, Fe, Cu, Mn, Bo (Micro-Nutrients) and pH, EC (Electrical conductivity) and OC (Organic Carbon). Based on this, Soil Health Card will also indicate fertilizer recommendations and soil amendment required for the farm. The main benefits of this mobile app is: [1] This app helps to save reams and reams of paperwork and man-hours required to fill in more than 14 crore of soil samples every year in our country. [2] Farmer has difficulty in identifying the GPS coordinates of the soil sample he has taken. Using this app, farmers can accurately measure and automatically send the data to the lab tester. This provides a huge opportunity to map soil nutrition based on geo positioned data, and helps the government to geospatially analyze the soil nutrition data across the country. Soil Laboratories representatives can also use this App. Representatives of Soil Laboratories can download this app and register themselves

using this app. Whenever farmer brings to them a sample, they can test it using the patented soil testing machine or the existing setup, and can update the results for that particular farmer using this app. Representatives can also fill in the dosage and recommendations using this application. If the farmer has downloaded the aau soil health card app, the results will be directly shown to the farmer. The app is for FREE for soil laboratories to download and update farmers data. This mobile app for farmers to receive soil data results and recommendations is also free.

Thus, we can say that Government of Gujarat has developed more than 113 mobile apps for farmers under Ikhedut innovation. Farmers can get right information at right time.

Other cases: The 'Grameen Phone' project of the Grameen Bank in Bangladesh has enabled the borrowers, all women, to buy cellular phones in order to earn better income. Many rural women who are engaged in small scale enterprises like poultry, farming, fisheries, livestock, selling various produce can know the current market rate through cellular phone service thus eliminating the exploitation by middlemen (Amin, 1998). In the villages of Bangladesh, which are among the poorest in the world, women entrepreneurs provide payphone services at a profit using mobile phones (Lawson and Meyenn, 2000).

Another example is Theli Phone. The 'Theli Phone' (shoulder-bag phone) initiated by SEWA (2003) in India with tie-ups with the cellular and limited mobility service providers and the handset manufacturers of the state enabled 5,000 members to buy mobile handsets as well as subscribe for the mobile services. The main intent is to increase efficiency and business outputs of its members like the salt farmers, artisans, vegetable producers and midwives through effective communication. The SEWA experience has also been shared internationally, resulting in similar models being set up, such as the Self Employed Women's Union (SEWU) in Durban, South Africa and the Women's Economic Empowerment Association (WEEA) in Yemen. The Self-Employed Women's Association (SEWA) in India has done outstanding work on this front by training rural women in the production and use of video to generate income, disseminate new skills and to advocate changes in policy. The self-help groups of women in

Andhra Pradesh, India are provided with mobile phones which have helped them to earn higher incomes by receiving more orders for their products and keeping in touch with the market demands and trends. The modest success of Bangladesh and India in improving women's economic status through the use of cellular mobile phones can enable the development of gender-aware universal access policies that stress public access points as an alternative to more capital intensive choices (one line per home) and ensure that the locations of public access points are gender-sensitive.

Development of farmers through Mobile App:

Information Communication technologies provide an opportunity to transfer knowledge and information by the Government Department. In the past the adoption of the mobile phones was primarily by rich people residing in urban areas. Nowadays mobile phones have been adopted by rural and urban populations in developing regarding weather, market and other related issues (Aker and Mbiti, 2010). According to Chhachhar and Hassan (2014) Mobile phone usage in third world countries is playing a vital role for the enhancement of farmers business towards agriculture. Recently, communication through mobile phones is considered very important in enhancing farmers' access to better understand agricultural market situation. Farming communities appreciate mobile phone as easy, fast and convenient way to communicate and get prompt answers of respective problems. Nowadays, the mobile phone has generated an opportunity for the farmers especially to get the information about marketing and weather. Through this important technology, they directly keep in touch with market personals and offer their produce with reasonable prices. The use of mobile phone also keep them aware for weather forecast for agriculture input application like fertilizer and pesticides which might be affected by unforeseen disasters as communicated by metrological department. This device has given new direction and approach to farmers to communicate directly and share about recent advances with each other. The studies showed that mobile phones have saved energy and time of farmers and ultimately improved their income. Mobile phones have provided an opportunity to the farmers to communicate directly with market

brokers and customers for sell their product in good price. The mobile phones have provided new approaches and thinking to the farmers forget the information and sell their product in market with any bargaining to brokers. Before the mobile phones mostly farmers were depend on broadcasting media such as radio and television to get knowledge and information about crops. This time mobile phone technology has given quick communication and approach to community with their community. The educated farmers use short service message (SMS) to get latest update agricultural information such as marketing information that facilitate the farmer about making logical decisions (Murthy,2009). The use of mobile phones as providing agricultural related information and it was showed that how mobile phone has been able to connect the farmers to market information on the customers. The effect of mobile phone could measure in the term of increased or decreased their sell productivity (Mittal & Tripathi, 2008). The importance of market information for the farmers could observed that mobile phones have provided timely and accurate information and by these farmers has increased their performance knowledge (Helmberger, Campbell et al. 1981). Mobile phone has provided new opportunities and access to farmers in different ways to communicate with market people and get latest information about commodities. It is no doubt that radio and television was also played an important role in diffusing information among different rural communities. Traditional media and new ICT have played a major role in diffusing information to rural communities (Munyua, 2000). Information and communication technology could play an important and potential role in increase the reach of agricultural extension. in the terms of the India where farmers explore the use of a voice message forum to provide interactive and access to appropriate and timely agricultural knowledge and information from experts by use of mobile phone. Now mobile phones are being adopted by rural communities in India to get information about weather disaster as well as pesticides. The mobile phone could provide help the cattle farmers to communicable diseases. This could change attitude and encourages new ways of thinking to cattle during calving which could reduce in stillborn

calves. In the longer term this increases the income and welfare of the cattle farmers. Nowadays many farmers contact with metrological department to get information about weather before start a pesticides in their crop (Duncombe, 2011).

Conclusion

To sum up we can conclude that Mobile apps play a very important role in the development of rural people. Farmers can get information on farming from different apps. There are different apps as marketing app, soil health card app, m-kishan etc which provides right information at the right time. According to Chhachhar and Hassan (2014) the information communication technologies are increasing in developing countries for the development of different people such as educationist, doctors, and agriculturist. The farmers are one of the big communities in developing countries where they have not facilities in their area for increase their product and income. Mobile phone is increasing among farmers but still there is gap available among business, customers and farmers. There is need of enhancement different project about mobile phone technologies where farmers could get easy access to communicate with people to sell their goods in market. The government and other related department should also plan to reach these farmers and provide latest information about seed, weather and market on the time and provide good price of their product.

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