Mobile Apps Revolutinizing Indian Agriculture

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Abstract— Agribusiness is one of the primary source of income throughout the world. In fact, we all depend on agriculture directly or indirectly. Communication and Information matters a lot in the development of any field, In agriculture also right Information at the right time matters a lot to the farmers. Modern ICT tools have fulfilled this dream. Smartphone is one of the most popular modern ICT tool that is playing a strategic role in the development of modern farmer. Smartphone and its applications has come with great innovations. Several mobile applications have been developed by government, private companies and non government organization to help farmers to reduce stress, acquire relevant information on good agriculture practices, weather, quality input, markets tendency, etc. This study focuses on how techie our Indian farmers are, and how mobile apps are helping them in easing their daily farm related tasks and increasing their income.

Keywords—- Mobile apps , Modern ICT , Digital agriculture

I. INTRODUCTION

The agriculture sector plays very crucial role in economy of any developing country. In India, directly or indirectly more than half of the total population depends on agriculture. Agriculture productiveness should be catalyzed to mitigate poverty. To achieve rapid productivity several critical issues must be taken care of like rural infrastructure, poor access to agriculture information, supply chain inefficiencies etc. With lack of right information about weather, crop, market prices, new technology etc at right time farmers are exposed to more risk and uncertainty and this has adverse impact on crop production and farm income. Those farmers who get up to date information at right time and use that information efficiently can lessen effect of the risks related to farming.

 Digital agriculture is the new key for success of agriculture development. Many latest technologies like ICT, IOT, Big Data, Artificial Intelligence are playing key role in development of agriculture. One of these technologies is modern ICT. This technology has made its footprint in developing rural areas and affecting healthcare, agriculture, rural tourism, transportation etc. sectors and focusing on design and implementation of modernizing rural people and their life.[22]

Modern ICT can play a big role and has the potential in bridging the information gap, and in reducing the information asymmetry that exists between farmers and between regions. Mobile is the most popular ICT tool as it affordable and user-friendly. Smart phone apps are helping farmers in daily tasks, enhance dissemination of knowledge and information, and help in better risk management. They are easy to use and farmer friendly, also most of the apps are in regional languages. Smart phone is most popular and widely accepted. Expanding affordable mobile phone services enhances mobile phone subscribers and are helping in improving awareness, education, health, market prices etc. Smartphone is helping in catalyze rural development and improving socio-economic status of farmer. The focus of this paper is to shed light on how smart-phone applications are helping in easing day to day task of Indian farmers and improving their social and economic status. [1]

Rest of the paper is organized as follows, Section II contain the review on smart-phone as popular ICT tool , Section III contain the review of mobile app benefits for agricultural and rural development, Section IV contains types of mobile apps developed for farmers, Section V is about mobile applications popular among Indian farmers and Section VI is conclusion of the study.

II. SMARTPHONE- POPULAR ICT TOOL

It has been discovered that among present day ICT modes, mobile telephony is widely accepted mode of receiving and delivering information anywhere in the world. Expanding cell phone and cell phone-based services connecting people in the world with speed and making world a small global village. According to the ITU report important milestone is

reached in connecting people throughout the world as more than half of world's population is using the internet. According to the latest ITU's statistics 51.2% global population or 3.9 billion people will use internet at the end of the year2018.In developed and developing countries there is good percentage increase in people using internet in recent years. Below is the chart for global ICT developments from year 2001 to 2018. [2][3]
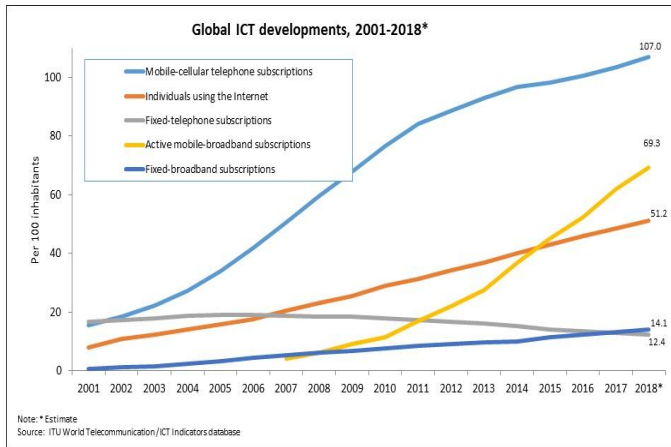

Figure 1 [2]

In India also the number of mobile subscribers increased from 1,193.72 million at the end of Nov-18 to 1,197.87 million at the end of Dec-18. The urban subscription increased from 664.54 million to 666.28 million at the end of year 2018, and rural subscriptions increased from 529.18 million to 531.59 million during the same period. So the monthly growth rates of rural and urban subscription were 0.46% and 0.26% respectively in the end of the year 2018.[4]

Figure 2 [4]

III.   MOBILE APPS BENEFITS FOR AGRICULTURAL AND RURAL DEVELOPMENT

Those days are gone when people utilized mobile phones just for communication, the present period is of Information and knowledge. Rural residents also need a mindfulness on the most proficient method to quicken the pace of self-improvement by grasping the advanced technology gradually in all walks of life.[21]

Mobile telephony is rapidly growing and is popular technology to transmit audio, video and data in this developing world. It is growing with dynamic speed and creating opportunities for social and economic growth in developing countries like India. This technology is boon for rural inhabitants as it provides access to information, markets and services. Mobile phones provides direct connectivity between farmer and consumer, can reduce waste and make efficient delivery in agricultural demand and supply.

Mobile application for agricultural and rural development has significant potential for empowering farmers and provide most affordable ways to access information about government policies, new farming techniques, market prices etc which were earlier unavailable to them.

With the advent of 3G/4G mobile networks worldwide, cloud based mobile application are getting advance day by day. With the advance of smart agriculture technologies like Internet of things, Global positioning systems, Data analytics etc and other cloud technologies mobile app development companies are working towards to leverage these technologies to benefit farming communities.
From these advance mobile applications farmers get the latest agricultural information, can directly communicate with retailers to get the best market prices by cutting the middlemen, can get information about government policies and services, can manage their smart farm with these mobile apps and many more.
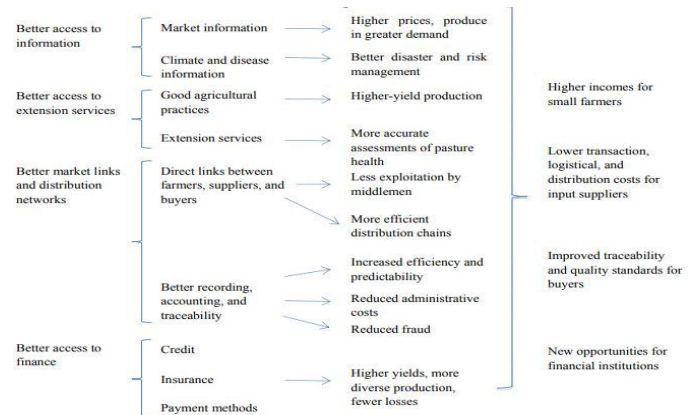

Figure 3 [5]

Mobile telephony is a game changer for farmers specially smallholder farmers as it helps in increasing their income and productivity, make markets more efficient and transparent, connect farmers to the global market, services and governance are more improved, Helping farmers in risk management, agricultural development makes rural economy more diverse.[5]

IV. TYPES OF MOBILE APPS FOR FARMERS

Mobile App development companies are developing applications according to the farmer's requirements. These apps are farmer friendly, they are in local language, easy user interface, video conferencing with agricultural experts and many more features. Based on the requirement various types of apps are developed for farmers like agribusiness apps, agricultural information, agricultural advisory, weather forecasting, farm management etc. Most of these apps are android based apps as it is affordable and user-friendly. These apps can be downloaded from Google Play Store and can be used. Government also launched some apps to help our farmers, also they distributed smart phone and tablets to small farmers to make them tech savvy. [6][7]

V. MOBILE APPS POPULAR AMONG INDIAN FARMERS

Table 1 [8][9][10]

Mobile Application	Purpose/Use	Developed By	Downloads
AgriApp	This app is online market place for farmers, and is common platform for farmers and agricultural experts, gives information about all the stages of crop cycle, agricultural videos, the latest agricultural news and may more features[11]	agriapp@criyagen.com	100,000+
IFFCO Kisan	This application has many modules for farmers regarding market, agricultural advice from experts, weather updates, the latest agriculture news, helpline numbers for call center services and may more.[12]	http://www.iffcokisan.com	500,000+
Agri Media Video	This app has collection of several agricultural videos from land preparation to harvesting and is one of the best source of extension video education for farmers, videos are in Gujarati and Hindi[13]	http://www.agrimediavideoapp.com/	50,000+
FarmBee-RML Farmer	This is one of the best app and is in 10 different Indian local languages, provides information at every stage of crop cycle, provide mandi prices, weather updates etc.[14]	https://farmbee.in/	500,000+
Kisan Yojana	This app reduces the knowledge gap of various government schemes for farmers and helping farmers in taking benefits from several government schemes.[15]	http://www.annindia.com/	100,000+
Kisan Suvidha	It was launched by government in 2016 to empower farmers, helping farmers in getting market prices, weather updates for next 5 days, agricultural advisories and many more [16]	https://cdac.in/	500,000+
Kheti-badi	This app supports organic farming and helps farmers in doing organic farming, gives the latest information, tips of organic farming, farmers can buy /sell their products through this app.[17]	https://kheti-badi.com/	10,000+
Krishi Gyan	This app helps in disseminating agricultural information to farmers, helps them to connect with agriculture experts in solving their queries.[18]	http://www.isapindia.org/	10,000+
Crop Insurance	This app is helpful in getting crop insurance, calculate insurance premium, crop loss can be reported etc.[19]	https://pmfby.gov.in/	1,000+
eNAM	This helps in electronic trading of agricultural commodities across India and is a common platform for farmers, traders, exporters, mandi functionaries and other people in agricultural supply chain [20]	https://enam.gov.in/web/	50,000+

VI CONCLUSION

This study has reviewed that more than challenges there is very long list of opportunities that is attracting farmers to learn and apply these modern techniques especially mobile apps to ease their daily tasks and finally improving their economic condition**.** These apps are farmer friendly as they in local language, easy to use, GUI and cloud based. Farmers are also getting support of government, Non government organization, Start-ups, Tech Companies, they are all focusing on improving rural infrastructures and putting efforts to make smart farmer. So it is evident that in the years to come the Indian farmers will be fully digitalized and will support the dream of full digitalization of India.

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