

THE NEED FOR SOCIAL MEDIA FOR AGRICULTURE IN INDIA

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Abstract

Since its inception, Social networking has become more advanced, making communication way easier and convenient for everyone. By understanding its characteristics and utilization, we can use social media to solve many problems by improving the current systems and designing new applications for online social networks. One such sector where social media can help in agriculture. The agricultural sector in India plays an important role in the country's economy. Hence, development in agriculture would in turn help in developing our nation. This paper presents detailed information about a concept – an online social networking model for agriculture and research analysis to demonstrate how social media can be a tool to help farmers and promote better agricultural practices.

Keywords – Social Media, ICT, Social Networking

1. INTRODUCTION

India is an agri-country, where agriculture is the largest livelihood provider in the country. It is estimated that about 58% of the country's population practice agriculture. Still, the majority of farmers in India are unaware of various new farming methods, following the conventional way of farming. The factors such as lack of proper information, financial help, proper infrastructure, awareness among farmers result in a lack of productivity. [1]

On other hand, social networking has become a great tool to communicate remotely with anyone, anywhere with the help of the Internet. Social

Media/Social Networking is a term that refers to the use of web-based and mobile technologies to turn communication into an interactive dialogue [2]. Social Networking has various forms which are used by every sector such as IT industries (*for recruitment, virtual meetings*), educational institutes (*online lectures, interactive classroom*) as well as for personal use too (*Facebook, WhatsApp, Instagram, Twitter, etc.*)

With this kind of networking services and initiatives such as Digital India (*proposed by the Government of India*), it ensures that every citizen has access to every information they require.

Today some farmers use Information and Communication Technology (ICT) such as television, mobile phones, computer, etc. to gather information and communicate among fellow farmers. Agricultural information is often seen as a crucial factor that interacts with the other production factors such as land, labour, capital and managerial ability. The productivity of these other factors can arguably be improved by the relevant, reliable and useful information and knowledge. Farming is getting evolved as these farmers have searched for new ways to improve crop productions. Information plays an important role to allow these farmers to improve their livelihood.

So, with the help of social media, there can be better information exchange among farmers. Additional information such as weather updates, crop rates, any new farming tips can be shared using dedicated social media, especially for farmers. This paper focuses on the following objectives:

1.1 Objectives

1. To analyze the social media trend and utilize it as a tool for agriculture.
2. To motivate farmers for adopting new technologies.
3. To assess the usefulness and potential of social media for building connections
4. To identify barriers and understand preferences for digital media by researching.

2. LITERATURE REVIEW

The Turmeric farmers case study explains how social media helps to bring unity and more freedom of expression among farmers. These farmers from Sangli district, Maharashtra were probably the first in India to use social media to enhance their bargaining power for their products in 2010-11. When prices crashed in the local market, they connected with other turmeric farmers across the country to know about the existing prices and decided to avoid the local auction. While organizing all the farmers in the district generally took months, about 25,000 farmers came together in just 10 days through Facebook. The farmers' protest has helped them to get a reason for their turmeric product [3].

The benefits of ICTs* reach even those who do not themselves have first-hand access to them. Through ICTs*, for example, a farmer in a rural village can get up-to-date information regarding certain practices and can use that information to advise and cultivation; an agricultural extension worker can learn new technologies, rainfall forecasts, commodity prices, etc. and use that information to advise farmers in rural villages etc.[4]

* *Information Communication Technology*

It is also quoted that, with the recent growth of social media, people all over the world are connecting through common interests more quickly, more inexpensively, and with less reservation [5]. They also stated this new trend allows users to keep in contact with other users that might not normally be able to because of time and distance issues. Social media allows users to be more involved in an activity that has previously been through one-way communication channels [5].

[6] argued that the communications world is quickly becoming more digital and those who participate in the transition will communicate more effectively than those who do not.

Farming requires information and technical expertise hence the need for extension services however, due to various factors extension services are not readily available to all farmers. A consensus exists that extension services if functioning effectively, improve agricultural productivity by providing farmers with information that helps them to optimize their use of limited resources [7]

In general, younger farmers tended to use social media more than average. About 46% of farmers use Facebook for personal reasons, according to the survey. Of those, 56% were age 35 and under. About 9% use Facebook for farm business reasons, while 21% of those aged 35 and underdone. Just less than 10% use Facebook to advocate for agriculture; that number jumps to 21% for the 35 and under crowd. [8]

3. PROBLEM STATEMENT

Today, many modern advancements are made in agriculture but not all farmers are aware of it especially in rural areas. Many farmers have now started using smartphones and social media to learn about new things and communicate. But still, there is a communication gap as groups are app-specific such as a Facebook-based community cannot directly communicate with some other social media application community. Another problem is many people are not used to technology and hence face problems while expressing their views. Reasons for such problems may arise when an application is in a foreign language such as English, or the user interface is not user-friendly.

3.1 Solution

To improve connectivity and bridge the communication gap, we proposed a web-based social media system for farmers where all farmers together can create a digital community over the internet and discuss various topics regarding agriculture. We aim to study all possible user-related problems in existing systems and create a user-friendly prototype of our concept.

4. METHODOLOGY

1. Survey

A survey was conducted by our group members to collect the necessary data and understand the needs and requirements of farmers. Due to COVID 19 situations, we have to arrange the survey virtually. A total of 46 people participated in the survey.

2. Objectives of the survey

The survey was conducted to understand the following points

- How digital services and technologies help farmers in their day-to-day life
- How information sharing takes place among farmers? If so, what are those mediums?
- What type of information does the farmer require?
- Are they familiar with the concept of social media?

All these points and other familiar questions were covered in the survey.

3. Data Analysis

All these data were stored on an EXCEL sheet as well as on Google Forms. Following steps were taken for data analysis.

- Data was separated and categorized into sections.
- Understand and demonstrate data using pie charts, graphs, etc.
- Distinguished the factors and implement them in the prototype.

5. IMPLEMENTATION

Using following results, we are going to present a social media model for farmers and agriculturalist which would -

- Help users connect with other people having similar interests.
- Contain simple user interface and accessibility options such as text-to-speech, speech-to-text services, local language support, etc.

- Gain knowledge about new farming methods and tips, articles regarding agriculture in their mother tongue/local language.

5.1 Results and discussions

The survey was conducted in two languages – English and Marathi. Out of 46 participants, 40 completed the survey in the English language whereas the remaining 6 participants completed the survey in the Marathi language. The participants were farmers, or belong to an agricultural background. 72% of the survey participants were MALE while 28% were FEMALE. The term ‘users’ refer to survey participants. The survey will help us realise and understand user requirements and what is expected if any digital service is being offered to them.

According to the survey,

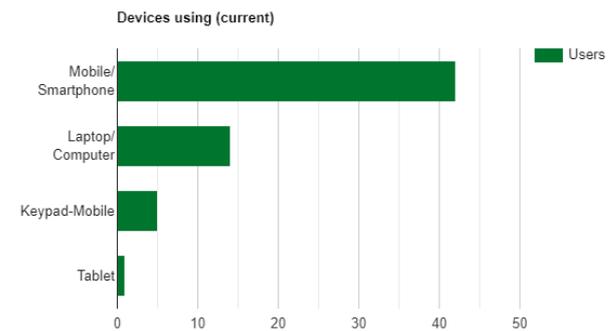


Figure 1

Mobiles/Smartphones was most used by users (refer to Figure 1). Along with smartphones, it is also observed that users use laptop/computers.

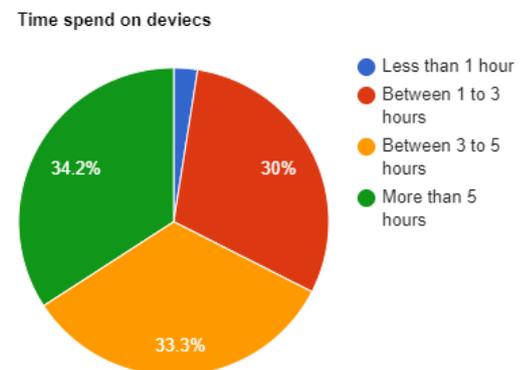


Figure 2

According to the survey, it was observed that the majority of users use devices for more than 5 hours. It is also evident that the majority of users use devices

in their day-to-day life. (refer to Figure 2).

Medium of information		
	Count	Percentage
Television/News	25	22.7%
Articles	30	27.3%
Social Media	37	33.6%
Communicating with other people	16	16.4%

Table 1

A pictorial description of the above data (refer to Figure 4) shows that "Social Media" is one of the most used media through which most of the communication and information sharing happens. Applications like WhatsApp, Facebook, etc. are the most used social media applications.

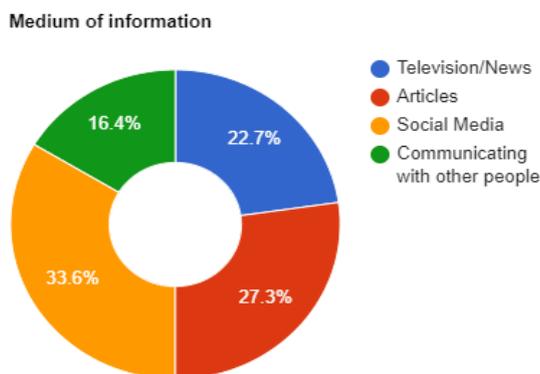


Figure 4

Is there any need for information sharing in Agriculture

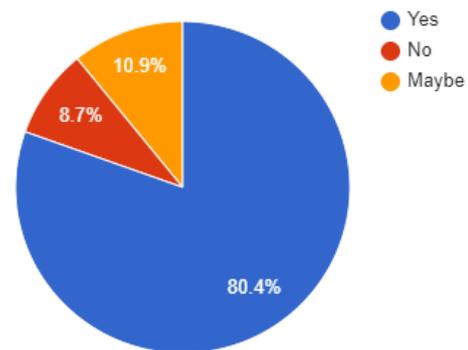


Figure 3

Approximately 80% of users (refer to Figure 3) agree that information sharing is necessary for agriculture. There are various mediums through which information can be shared (refer to Table 1).

Though there are slight differences in the approach of these three forms of social media. Specifically, Facebook is a social networking site that allows people to build personal web pages and then connect with friends to share content and information.

Facebook remains the most popular social media platform by agricultural research and extension professional in Use of Social Media in Agricultural Extension (9)

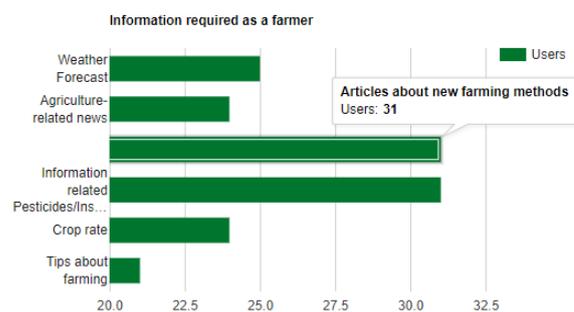


Figure 5

Information about newer farming techniques was demanded. Other than that information related to pesticides was one of the most required information in general. This result helps us to understand that

farmers are willing to adapt to new methods and technologies.

If Social Media platform is being made for agriculture, then which language will you prefer to use?

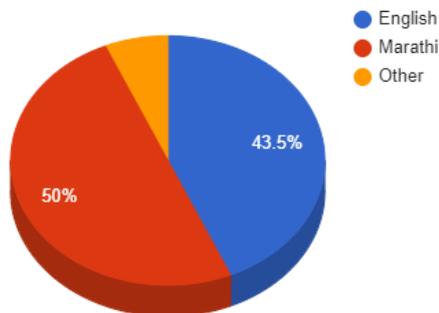


Figure 6

Over 50% of survey participants voted for Marathi as a primary language for agricultural social media. While remaining voted for English (43.5%) and other Indian languages (6.5%)

4.2 Concept of social media model

By understanding the problem statement, we figured out that the best way to introduce a digital transformation in Indian Agriculture is through social media. With the help of government programs like “Digital India” and people adapting to newer technologies, communication is a lot faster.

By understanding the problem statement, we figured out that the best way to introduce a digital transformation in Indian Agriculture is through social media. With the motivation from government programs like “Digital India” and people adapting to newer technologies, communication can improve using social media.

5.3 Project Design

We have proposed a Social Media which has 3 major blocks/modules

- I. User Authentication Module.
- II. Main Feed and User Profile Module.
- III. Dashboard Module.

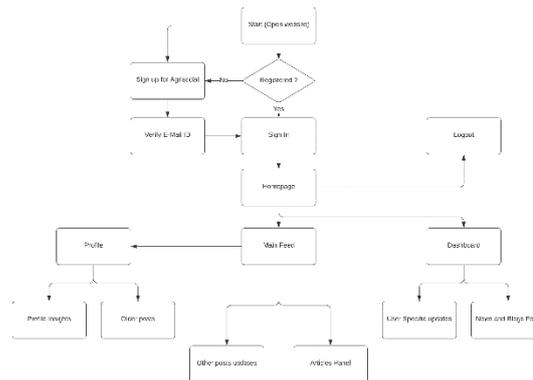


Figure 7

• User Authentication Module

We are using Firebase Authentication service from Google Firebase. Firebase Authentication provides backend services, easy-to-use SDKs, and ready-made UI libraries to authenticate

It supports authentication using passwords, phone numbers, popular federated identity providers like Google, Facebook and Twitter, and more.

Steps[11]

1. First, connect your project with Firebase by including Firebase JS SDK libraries using Content Delivery Network (CDN).
2. Include Firebase API package in your project to use Firebase libraries.
3. To create Angular Authentication System, we need to create central service with Firebase API. User model contains the data that needs to be communicated with the server.
4. Import all the Firebase auth services and inject them in the constructor.
5. Define a variable **userState** which sustain the user authentication state.
6. After defining the methods use **firebase init** to access Firebase console.
7. Select Hosting from the options provided.
8. After allowing Firebase to host the project, create a build using angular cli. A build is a compressed set of files which executes sequentially and also reduces overall project size

9. After hosting and creating a build for the project, deploy it to the cloud server using command firebase deploy. This command deploys the build previously created over cloud and provides a link to firebase console and a link to a website over which the project is deployed.

• **Main Feed and User Profile**

- Profile component will contain a personalized profile page which includes user information, user’s interests, older posts, etc.
- User has a facility to create a new post here in preferred language by just speaking using **Speech-to-Text algorithm** or by simply typing.
- The main feed will contain posts by other users. It will also news panel for quick agricultural news updates.



Figure 8 – Main Feed page

• **Dashboard Module**

- This section will contain all useful data that a user may require to go through.
- Data like crop rate, weather updates, and other information is available on dashboard.

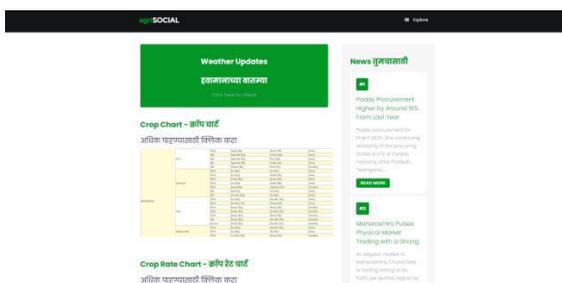


Figure 9 – Dashboard Module



Figure 10 – Articles section

5.0 Conclusion

By considering all the points gathered and studied according to the survey, we can conclude that building a platform where all farmers, agriculture experts, students can together form a social community, will add a digital dimension to agriculture.

And it will also help to promote agriculture to more people across the internet, which in turn will improve productivity.

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