PROSPECTS IN E-RETAILING OF AGRO-INPUTS

Project Report

SUBMITTED IN PARTIAL FULFILMENT OF THE

REQUIREMENTS FOR THE DEGREE OF

Master

of

Agribusiness Management

Supervisor: **Submitted By:**

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CERTIFICATE

To,
The Registrar (Academic)
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Dear Sir,

This is to certify that the project report entitled **"PROSPECTS IN E-RETAILING OF AGRO-INPUTS"** submitted in partial fulfillment of the requirements for the degree of **MASTER OF AGRI-BUSINESS MANAGEMENT**, in the Department of Agricultural Economics, Institute of Agricultural Sciences, Banaras Hindu University, is a record of bona fide research carried out by **Mr. AMBUJ KARN, ID. NO. ABM-14211,** under the supervision and no part of the project report has been submitted for any other degree or diploma.

I certify that the entire scheme of investigation, presented here in, was planned and carried out solely by the candidate under my guidance. To the best of my knowledge, the data presented in the report are genuine and original.

Thanking You.

Forwarded by: **Yours faithfully,**

Dr. V. Kamalvanshi

(Head) **(Coordinator)** **(Chairman of Advisory Committee)**

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By

Ambuj Karn

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ACKNOWLEDGEMENT

At the outside, being the student of this great institute, I bow my head with great reverence in the pious feet to the founder of this University, **Mahamana Pandit Madan Mohan Malviya ji**, a man of great vision for creating such a wonderful and unique University, a great temple of learning.

Words can never be enough to express my gratitude and indebtedness to mySupervisor **Dr. V. Kamalvanshi,** Assistant Professor, Department of Agricultural Economics, Institute of Agricultural Sciences, Banaras Hindu University, for his invaluable guidance andhelp. In addition to being my teacher and guide, he has been a friend and a source ofinspiration.

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In the end I would like to express my unending love and gratitude to my parents Mr. KamalKumar and Mrs. Abha Rani Karn and brother, Jalaj Karan for being my family.

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Chapter I

Introduction

India being an agrarian economy has agriculture as its major source of employment. Employing about 49 % of labor force and generating raw materials for industry and a significant amount of services it makes quite a significant contribution to the national GDP through all its sectors. Agriculture in India is in stagnation and in turns needs revival.

The Indian scenario

India is moving towards an agricultural crisisdue to inadequate investment in irrigation and agriculture infrastructure, lack of attention, ineffective land management, non-given of fair prices to farmers for their crops and insufficient land reforms in India, etc. Food production and productivity in India is declining while its food consumption is increasing. The Indian agricultural sector has been characterized by low productivity growth despite periods of strong growth in the past. Serious challenges must be addressed in order to achieve faster productivity growth. These include infrastructure constraints, supply chain inefficiencies and significant problems in the diffusion of and access to information. The challenge for the government and policy makers is to regain agricultural dynamism. To achieve a higher agricultural growth rate, the next generation green revolution in India must be preceded by the next generation of technology and infrastructure development. Small and marginal farmers, who are the vast majority of Indian farmers, are often unable to access information that could increase yields and lead to better prices for their crops. The sector also faces problems arising from a shortage of investments in rural infrastructure, which adversely affects farm productivity growth.

An improvement and strengthening of agricultural infrastructure is needed at all levels of the supply chain – input delivery, credit, minimizing post-harvest losses, cold storage chains, marketing etc. Shrinking extension is another component of infrastructure that needs attention. The government has a huge research and development infrastructure in the form of institutions such as the Indian Council of Agricultural Research (ICAR), state agricultural universities (SAUs) and Krishi Vigyan Kendras (KVKs). The role of this set-up in research and extension

activity is of great importance. However, crumbling public extension services are a cause for concern.

After the green revolution in the mid-sixties, there has been no major technological innovation, which could give a fresh impetus to agricultural productivity. Insufficient extension services and poor access to information is further widening the gap in the adoption of technology leading to poor productivity levels.

A push towards higher agricultural productivity will require an information-based, decision-making agricultural system (precision agriculture). This is often described as the next great evolutionary step in agriculture. Precision agriculture, inturn, is heavily dependent on an efficient information dissemination system – GPS and mobile mapping technologies offer the means to set up such a system. The increasing penetration of mobile phones and mobile-enabled information services in rural India can reduce information asymmetry and complement the role of extension services. In the context of India, the impact of mobiles as a mode of providing information for farming purposes would depend on how effectively the mobile network links farmers to market information. The impact on productivity can be measured in terms of increased returns –through changes in cropping pattern, yield increases and better price realization (inputs and output) – to farmers. Non-price factors like information on the availability of inputs, seed quality, and adoption of modern techniques are also critical to raising productivity. After land, the provision of farm inputs such as seeds, machinery and equipment, fertilizer and agrochemicals are probably the most important factor in the productivity of farms. Highly productive farmers require the right inputs, in the correct quantities, at the right time and at affordable prices. The effectiveness of input supplying industries in satisfying these requirements is largely influenced by the structure, conduct, and regulatory environment facing them.

What is E-Agriculture?

"E-Agriculture" is an emerging field in the connection of agricultural informatics, development and entrepreneurship which is focusing to agricultural services, technology distribution and information delivered or developed through the Internet and associated technologies. Specifically, it engages the conceptualization, design, development, assessment and application of innovative ways to use active or emerging information and communication technologies (ICTs).

The delivery of agriculture related services via information and communication technology (ICT) is called E-agriculture. This type of services requires access to PCs and internet.

The four different functions that an E-agriculture business performs

- Information distribution
- Input supply
- Commodity trading
- Logistics/supply chain management.

Successful implementation of ICTs is evident in the examples of ITC's e-choupal which has been a tremendous success in the field of rural marketing. In the last decade, the online retailing has been introduced to and greatly accepted by the Indian masses. India had an internet user base of about 462 million (34.8 % of population) as of June 2016 and is expected to cross 500 million in 2016; when a report by IAMAI and KPMG projected that India would reach 236 million mobile internet users by 2016, and 314 million by 2017. Despite being the second-largest user base in world, only behind China (721.4 million, 52.2 % of population), the penetration of e-commerce is low compared to markets like the United States (287 million, 88.5 %), or France (55.8million, 86.4 %), but is growing at an unprecedented rate, adding around 6 million new entrants every month. The industry consensus is that growth is at an inflection point.[1]

As of 2014, the Active Internet User (AIU) base in rural India was 6.7% of the overall rural population of 905 million and accounted for 61 million users. 4.4% of the total rural population used a mobile device to access the Internet compared to 0.4% in the year 2012.

International scenario:

It was recorded that the retail sales through the Internet are about 1% of all retail sales in the American economy (DoC, 2001). To consider at the effectiveness of E-commerce in agricultural input delivery would greatly benefit of contributors and planners. The general population continues growing of computer adoption at a stable rate as does internet use (U.S. DoC, 2001). Agriculture business operating in remote rural areas, the internet based technologies recommends the prospect of defeating drawbacks relative to urban areas, particularly those related to social isolation. Agriculture is fragmented structure, relatively isolated trading community and so inefficient supply chains mean that the Internet provides sufficient scope to reduce costs and improve service levels (Warren, 2002).

Project objectives

- To identify the potential supporting structure for e-retailing in the rural areas.
- To study the agro-inputs' supply chain and the stakeholders.
- To study the different segments of agro-inputs for retail and related strategies of the marketing firms involved in e-retailing.
- To identify the challenges and opportunities in e-retailing of agro-inputs.

Chapter II

Review of literature

- Nirmala *et al.* (1995), In India, though it is generally claimed that public extension is system the predominant source of farm information dissemination it was disappointing to note that it was accessed only by a small proportion of farm households."

- Warren (2002) said "Agriculture is fragmented structure, relatively isolated trading community and so inefficient supply chains mean that the Internet provides sufficient scope to reduce costs and improve service levels."

- Herselman (2003) said "Technology on its own is neither an advantage nor disadvantage. People and how they use technology gives it an advantage or a disadvantage". "ICT represents the development of knowledge in rural areas of developing world which can share the knowledge and information effectively harvested."

- "Internet is the key component of technologies like ICTs (Information and Communication Technologies). Internet is becoming very important in every activity, including agriculture sector" (Pickernell *et al.*, 2004; Michailidis, 2007; Roldan and Wong, 2008; Mishra *et al*., 2009; Sudaryanto and Soekartawi, 2009).

- Elia, Lefebvre and Lefebvre (2007) Based on its demonstrated impact in industrial retail markets, e-commerce is believed to have the potential to increase profitability in agricultural markets by increasing sales and decreasing search and transactions costs.

- The creation of electronic markets that are expected to be more transparent and competitive than physical markets may attract more consumers by increasing demand and improving the firm's strategic position with customers seeking specific niche products or having geographical restrictions (Batte and Ernst, 2007; and Montealegre, Thompson and Eales, 2007).

- Adhiguru (2009), the recent information revolution by Information and Communication Technology (ICT) has potential to provide a greater quantum of information, covering a wide range of subjects in the shortest possible time. But, to harness this potential for agricultural development, it is essential to understand the existing sources of information and their utility and relevance in terms of outreach, subject matter coverage and utilization by the farmers."

- Hassan *et al*. (2010), in Malaysia, 94% of the farmers used internet for the seeking of agriculture information while 85% farmers used the text messages to get the information.

Chapter III

Methodology

The studies have been carried out in four aspects:

- The first objective invokes the study about various methods, information delivery systems and/or alert systems that are being used by the government or other agencies.
- The second objective gives information in brief about various stakeholders involved in traditional supply chain of agro-inputs to a typical farmer in this country. This chapter also deals with identification of a few major marketing firms or platforms being used in the sale of agro-inputs through a virtual medium.
- The third objective of the study is concerned with marketing practices and services offered by these platforms highlighting the unique selling proposition of each entity.
- The fourth objective of the study deals with identification of various challenges and opportunities that are evident while moving along the course of acquisition of farmers as prospective clients.

The information has been collected through various resources available in online-journals, news articles, research papers, editorials etc. and own study during internships.

Chapter IV

Results and discussion

4.1 Information transmission system

In proposed system, information from the source (e.g. Board of Agriculture) can be sent to farmers on a routine basis. The proposed system uses information and communication technologies (ICT) which uses mobile phones and e-mails. The information is divided into three phases, namely daily basis, seasonal basis, and other information. In daily basis the information regarding agriculture parameter can be sent to farmers as daily alerts. In seasonal basis the information regarding weather, crop details etc. can be sent to only particular farmers based on their respective agriculture type. This can be done by using clustering mechanism namely birch cluster to group the farmers. In other details phase the general information can be sent to farmers whenever the Board of Agriculture announces messages.

The overall Architecture of the proposed system is as follows:

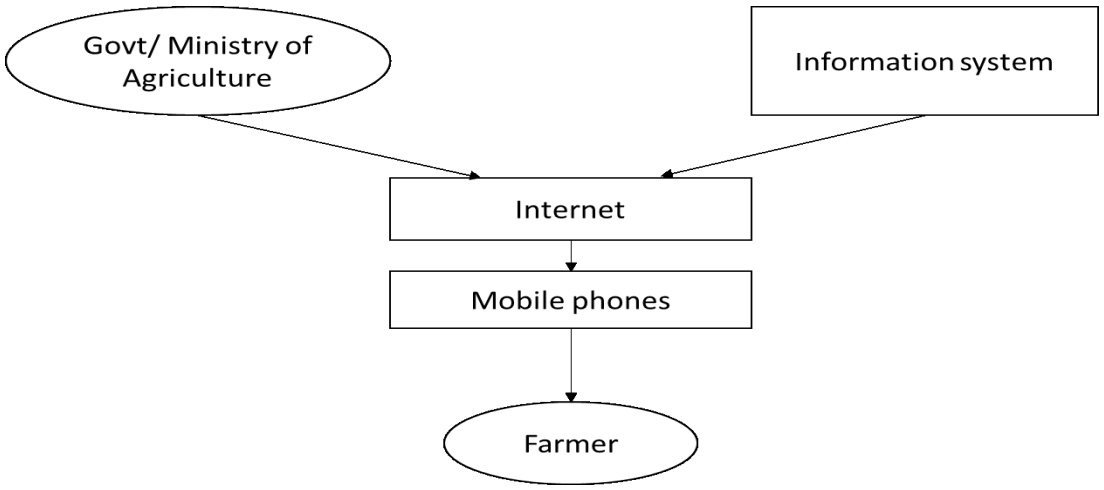

Figure 1: Overall architecture

The news releases from the government does not reach the farmers in time, therefore an alert system is being built for daily releases and for seasonal releases.[2]

The Information System is classified as follows:

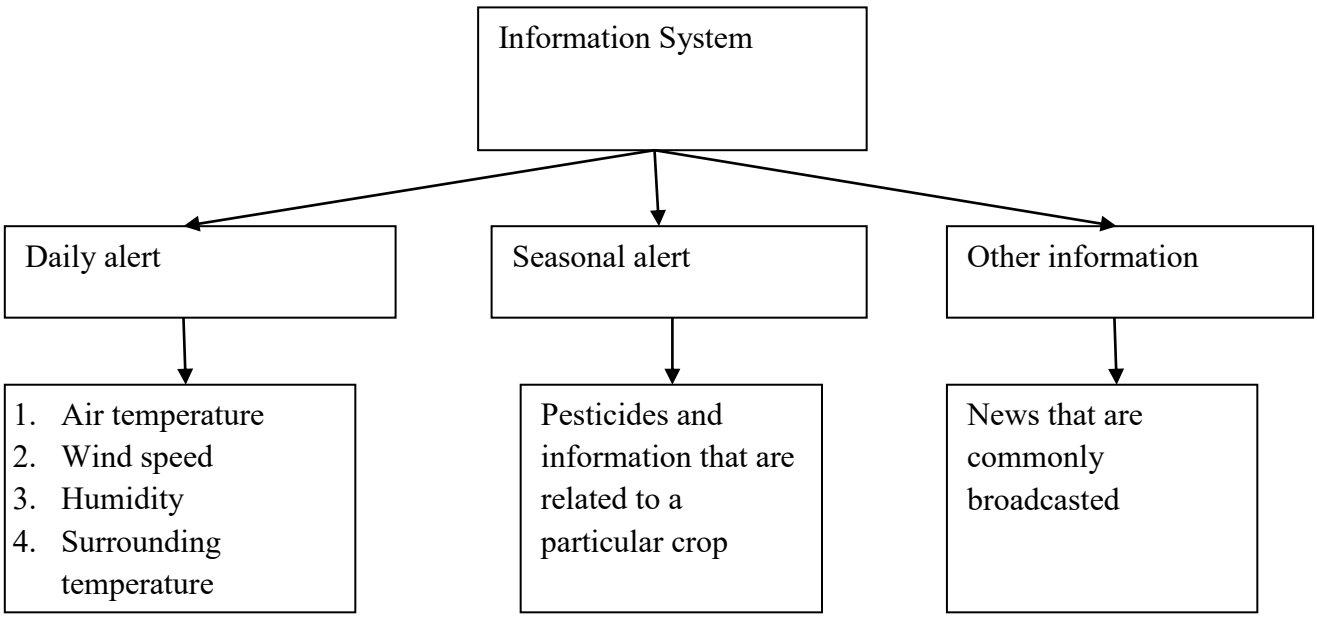

Figure 2: Information System

The daily alert system is being built using JAVA environment.

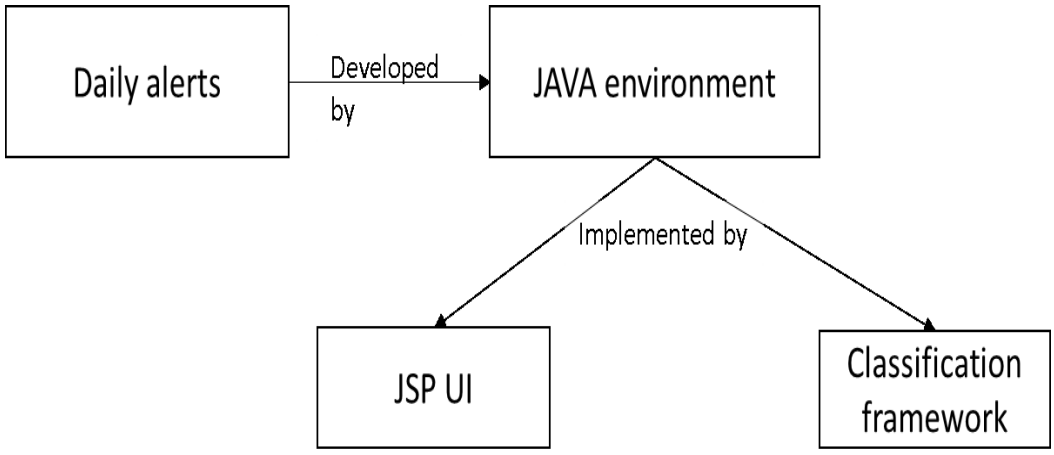

Figure 3: Daily Alert System

For a seasonal alert system WEKA (Waikato Environment for Knowledge Analysis) environment is being used.

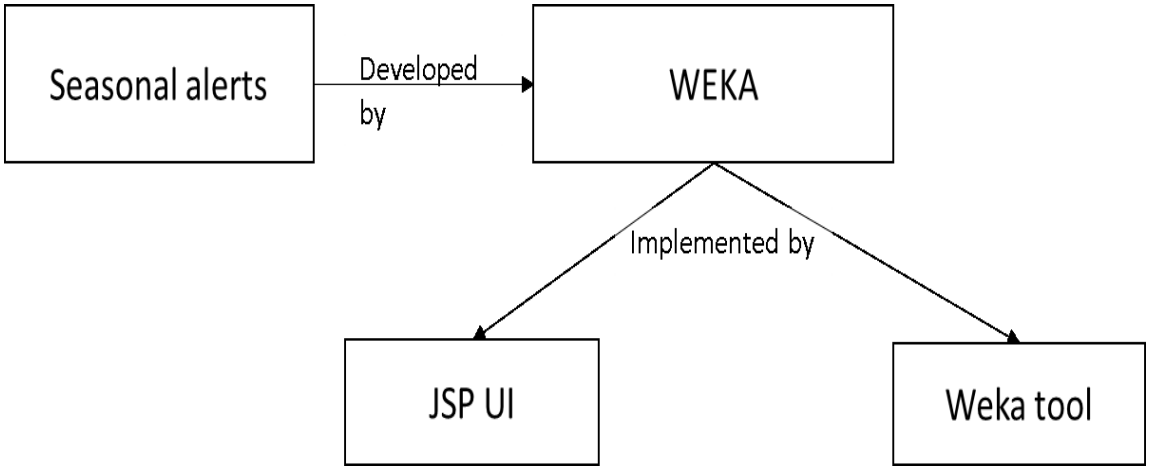

Figure 4: Seasonal Alert System

The process view for a daily alert system is as follows:

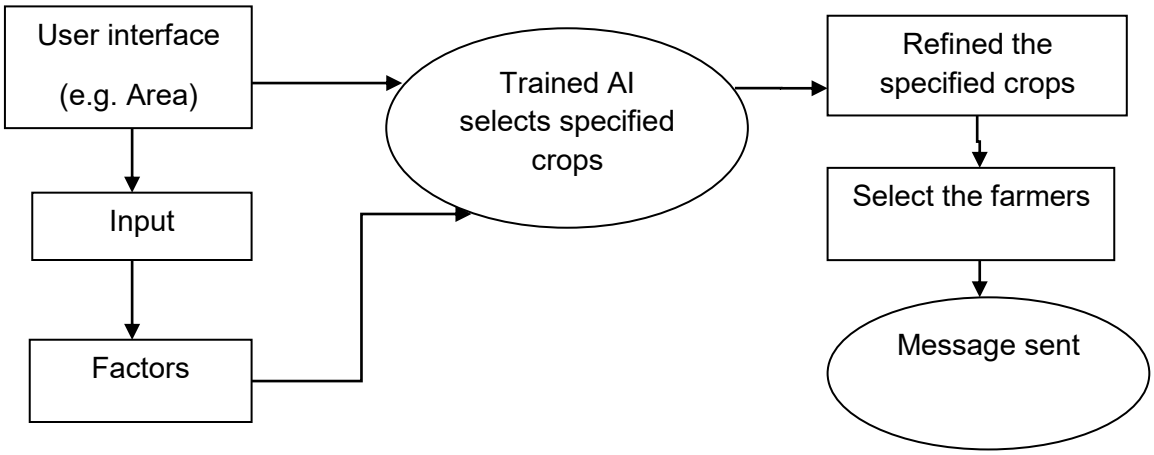

Figure 5: Process view for daily alert system

The process view for a seasonal alert system is as follows:

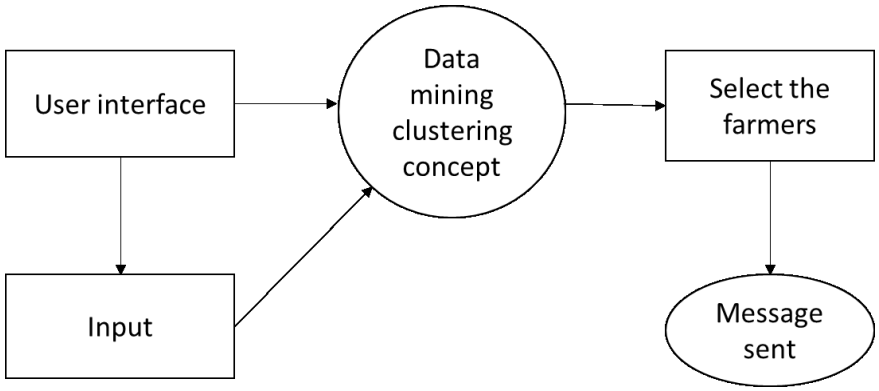

Figure 6: Process view for seasonal alert system

The following diagram shows the system architecture of the proposed system.

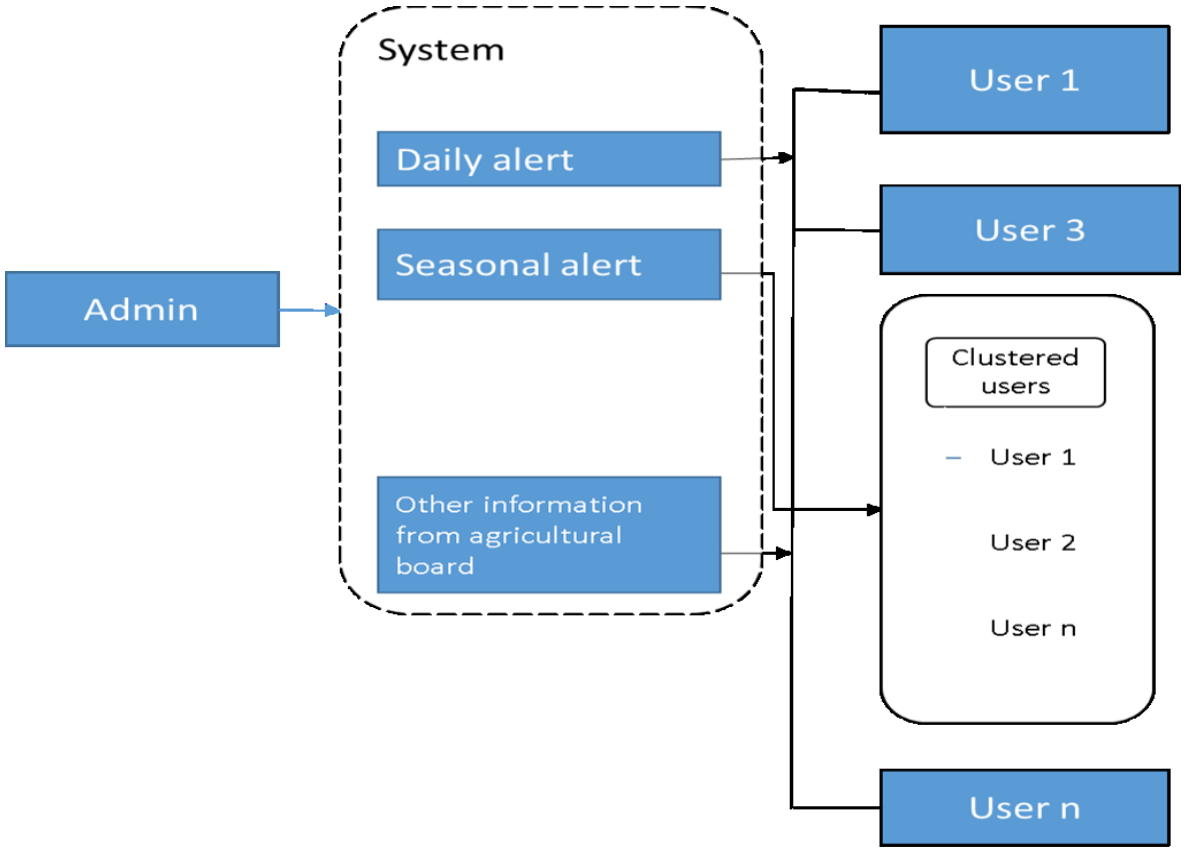

Figure 7: System architecture of proposed system

The step by step process of proposed framework is as follows:

1. Information passed on daily basis

2. Information passed on seasonal basis

3. Other details Information regarding agriculture.

The information passed to the farmers is of two types:

1. Information passed on daily basis

Initially, the Administrator has to be registered and logged into their organization. The database can be maintained consists of farmer's details and crop details; Farmer's details such as user name, password and mobile number and crop details such as Wind, Humidity, Air temperature, surrounding temperature and Crop.

In this phase, farmers receive the information regarding agriculture parameters such as Prices of Crop details, Prices of fertilizers, Weather conditions etc. This information can be sent to farmers through SMS via SMS Gateway.

2. Information passed on seasonal basis

In this phase, particular farmers receive the information on seasonal basis. To do this the farmer's details in the database has been clustered. The clustering of farmer's details can be done by using data mining technique called birch clustering which is one of the Hierarchical clustering method.

BIRCH (balanced iterative reducing and clustering using hierarchies) is an unsupervised data mining algorithm used to perform hierarchical clustering over particularly large data-sets. An advantage of BIRCH is its ability to incrementally and dynamically cluster incoming, dimensional metric data points in an attempt to produce the best quality clustering for a given set of resources (memory and time constraints). In most cases, BIRCH only requires a single scan of the database.

4.2 Stakeholders in agri-input supply chain

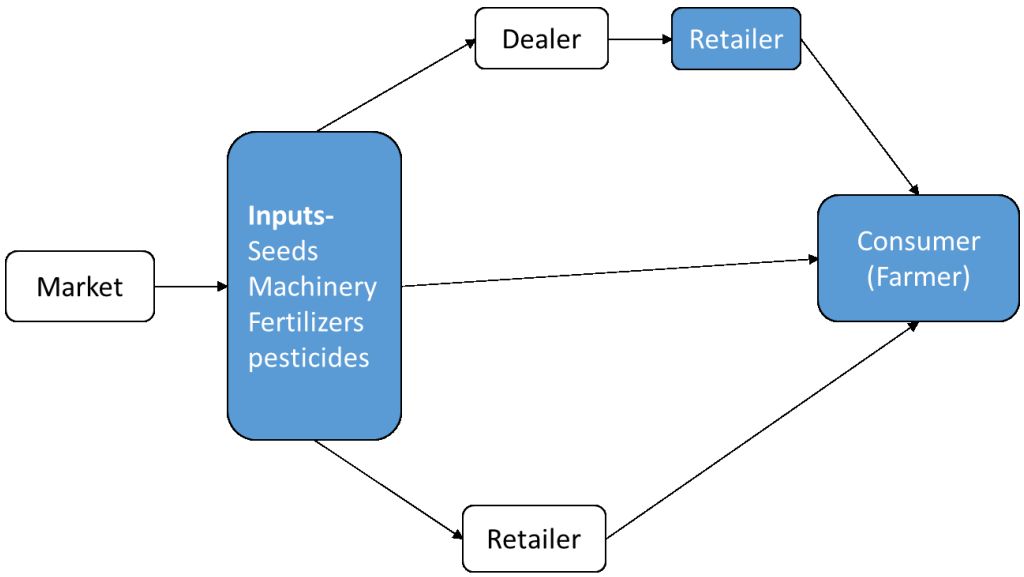

Figure 8: Producer's purchase model

Farmers or producers purchase their required inputs in three ways; from retailers who purchase from direct market, from retailers who purchase from dealers, and farmer purchases from direct markets. As many parties get involved in the selling or purchasing of inputs there may be an increase in the expenses because the middle men (brokers) also take their marks up on each sale and purchase.

Dealers: They operate mostly in block headquarters in a district. They procure the sellable items directly from company's storage houses and are significant players in the market. The transactions made are cash or short term credit sales for fixed time period extending up to a few months. The companies depending on their policies offer different types of repayment plans to choose from, with varying rates of interests.

Retailers: They purchase the products from dealers and act as sellers to the farmers. This is especially true in case of small and marginal farmers. However sometimes there is subsequent movement of products between retailers as well. The chemicals are sold for cash or on credit while the seeds are sold in cash. The dealers and retailers also serve as the source of information regarding new varieties of seeds or chemicals and their applications to a farmer.

Arhatiyas: They are not directly involved in the supply chain; rather they provide credit to the farmer to assist the purchase and in few cases are involved in recycling of seeds to the farm in absence of a storage facility with the farmer. In present times their role is diminishing very fast.

Naturally the involvement of the intermediaries results in increased prices due to the addition of corresponding margins. The margins can vary from 5 to 10 percent of manufacturer's price which subsequently results in a change of 25 percent or even more for the end consumer.

Sugumar *et al*. (1994) have observed that 95 percent of input dealers provide information to farmers based on their knowledge and experience gained through discussions with representatives of fertilizer or pesticide firms, and of these, 56 percent were also found to consult extension workers. By providing information, input dealers try to earn goodwill of the farmers and to some extent are able to promote their business relationships with them.

This makes it very difficult to do away with the intermediaries who while acting as the source of information for farmers, also are the agents and marketeers for the company. Only the development of a strong communication (electronic) network can help limit the dependence on them.

The e-retailing platforms identified for study were

- Aquall
- Agrostar
- Snapdeal

4.3 E-Marketing platforms for agricultural inputs

Innasoft Technologies Pvt. Ltd. (Aquall)

Ramaraju Lakkamraju is the co-founder and CEO of Hyderabad based Innasoft Technologies Pvt. Ltd. He started the company with his brother, Suribabu, and their team has built websites and mobile apps for a host of businesses across India.

The services offered are:

- WEB DESIGNING
- WEB DEVELOPMENT
- SOFTWARE DEVELOPMENT
- MOBILE APP DEVELOPMENT
- GRAPHICS & MULTIMEDIA SOLUTIONS
- E-COMMERCE DEVELOPMENT
- SEO SERVICES

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Tel. 040-65244567

Mail: info@aquall.in

Uppalapati Naresh approached them with the idea around the subject (aquaculture), they took it up and Aquall was developed.

Aqua farming is not a subject often spoken about. Also known as aquaculture, it is the farming of aquatic organisms and plants under controlled conditions. Different from fishing, aquaculture has a history dating back to 6,000 BC. If one looks only at fishes, the total world production of fisheries in 2012 was 158 million tonnes, of which aquaculture contributed 66.6 million tonnes (42 percent). In India, two types of aquaculture are practiced: freshwater aquaculture and brackish water aquaculture. Freshwater aquaculture involves the breeding of freshwater fish like carp, catla, rohu, freshwater prawn etc. Brackish water aquaculture involves breeding of fish that habitat the sea like sea bass, grey mullet, tiger shrimp and mud crabs. Andhra Pradesh ranks first in coastal aquaculture and fresh water aquaculture.

The aqua farming industry has seen no major technology intervention. The problems are like in any other industry: the end users (farmers in this case) have to deal with a lot of middlemen and pay a heavy price, while the manufacturers or producers don't have good distribution channels. Aquall was built to serve as a platform for marketing aquaculture inputs straight to the aqua farmers. "Aqua-all" aims to be the one-stop place for all the supply of aquaculture related products all over India.

Naturally an important question arises whether the farmers are online? The team at Innasoft is positive about it. According to Ramaraju, "We are in the marketing phase and it's a tough road ahead but many aqua farmers possess smart-phones and are reasonably tech-savvy." Aquall is spreading the word by sending bulk SMSs and the online channel is more of a bridge to enable farmers and others to look at what is available. Farmers can also fill up a simple form with their requirements and Aquall takes care of the rest.

It also has some technicians on board. The main reason for starting Aquall was to solve the problems of aquaculture farmers in India. India is an active aquaculture producing country, with more than 10 percent of the global variety of seafood farming being cultivated here. India ranks second in the world with an annual seafood production of about 9.06 million metric tonnes. Since the 1990s, industrial-scale aqua farms have mushroomed all over India and this is to meet the requirement of burgeoning population globally. With the Indian government encouraging coastal areas to nurture aqua farming, the need for aquaculture supplies has increased at a rapid rate.

Aqua farmers in India experience substantial challenges from starting aquaculture to buying aqua inputs and finally selling their yield at best market price. This is the chain they want to enter. A lot of education will also have to go in. Aquall aims to provide elaborate guidance on every aspect of feed, each kind of seed variety, and different chemicals and aerators to be used with price negotiations on the manufacturer and distributor provided cost.

An attempt to buy aquaculture products online yields some results from Indiamart and Alibaba. There are a few other companies like Seao and Sagar Aquaculture which are also in the space.

For Aquall, it is in its early stage, but definitely a good starting point to bridge the online and offline divide in aqua farming.

What makes it so different?

Aquall is entirely focused on aquaculture and has an interesting range of products:

- **SEED**
- **FEED**
- **AERATORS**
- **CHEMICALS & CHLORIDES**
- **TECHNICIANS**
- **HARVESTER**
- **POND**
- **LABORATORY**

It offers seed material for rearing of popular types of prawns. The technical assistance and laboratory support is provided to customers by the platform itself through enlisted service contacts which distinguishes it from any typical e-retailer firm making it a one-stop shop for aqua-farmers. Moreover, it is available in six languages to facilitate the trading.

SWOT ANALYSIS of the firm in brief:

The late 1980s saw the dawn of aquaculture in India and transformed fish culture into a more modern enterprise. With the economic liberalization of the early 1990s, fishing industry got a major investment boost.

Strength: India's breeding and culture technologies include primarily different species of carp; other species such as catfish, murrels and prawns are recent additions. The firm is catering to all the needs of an aqua-farmer. The technological aspect involved will help the farmers to raise better quality harvest on sustainable basis. The firm due to these factors has seen a rapid growth within a few years after the conception of Aquall.

Weakness: the present focus is limited to the prawns which have a relatively smaller market among the reared aquatic species. The firm should involve production technology for fish culture as well which being associated to a larger export market and domestic demand would bring more business.

Opportunities: The weakness of the firm also implies the growth potential for the platform. In addition to this, there is a possibility for the establishment of seller section in the platform where a list of sellers can be made available to interested buyers. These can be exporters, local cuisine houses or simply the door-step deliverers for domestic households.

Threats: Aquall is facing more of difficulties than threats as the number of tech-savvy farmers is very limited. The market demand comprises more of fish than prawns. There has been an increase in the number of industrial-scale farms catering to the local consumers. This is likely to pose a risk to small scale producers of the surrounding areas if the markets are overwhelmed by supplies which will influence the price and associated demand and supply patterns.

MARKETING STRATEGY

Segmentation, Targeting and Positioning strategy: Among the aqua-farmers the prawn breeders are the sole targeted customers at the present time i.e. the firm has adopted single market strategy while its positioning strategy is based on user class.

Agrostar

A “direct to farmer” m-commerce platform through which farmers can procure agro-inputs needed for their farms by simply giving a missed call on the platform and eventually accessing their mobile app. AgroStar has headquarter at Pune and currently operates in the states of Gujarat, Maharashtra, Madhya Pradesh and Rajasthan. Farmers in these states can procure an entire range of good quality and branded agro-inputs like seeds, crop nutrition, crop protection and agri-hardware products through the company's m-commerce platform.

Address

ULinkBioEnergy Pvt. Ltd., S.No:46/1, A1 Building, First Floor, Office No. 101 E-Space Wadgoan Sheri, Nagar Rd, Aga Nagar, Pune-411014

Maharashtra, India

Tel: 020 41504243

Email: info@agrostar.in

The key features claimed by the platform are:

1. QUALITY: Provides authentic and good quality products manufactured by established companies. Farmers no longer need to deal with duplicates, fake or expired products.
2. CONVENIENCE: Products are delivered at the farmer’s doorstep in villages. Farmers don’t need to travel long distances thereby saving on their travel time and cost.
3. SERVICE: Provide timely and efficient customer service, which has not been experienced by farmers so far.
4. PRICE: Endeavor to make products available to the farmer at a fair price.
5. AVAILABILITY: Wide range of products and brands available to every farmer, irrespective of their physical location. Centralized storage and delivery eliminates the problem of demand–supply mismatch faced in micro markets.
6. EASE OF USE: Farmers only have to give a missed call on their 1800 number. The executives return the call, understand their requirements and process their order.

What makes it so different?

The company has partnered with many different manufacturers and sourcing agencies enabling it to offer a wider range of products to a farmer in all segments- seeds, nutrition, protection and hardware while producing none. Also it promises timely doorstep delivery to each individual regardless of his/her physical location indicating possibly, the highest level of customer service in current Indian scenario which is absent in case of any other platform.

SWOT ANALYSIS

STRENGTH: The firm has all the inputs necessary for farming available with it. This will be the biggest factor in its favor in the market expansion. The firm has rapidly expanded its reach and has shown very good growth in economic terms as well.

WEAKNESS: The awareness about the brand is still confined to a small part of western India. The promotional strategy leaves a lot to be done. The website is very small and needs to be developed with more options and facility for purchase of products. At present it is limited to mobile app and telephones.

OPPORTUNITIES: There are vast areas of states where the firm has not expanded till present date. In addition the adjoining states also have great potential as new markets.

THREATS: The other e-retailing firms are also now operating in the agro-input market. They already have a foot hold in urban areas and are trying to expand in the rural markets as well. Till date the technological ignorance of the farmers played against them but the turning tides are likely to raise the competition.

The positioning and promotional efforts are very limited.

Jasper InfoTech Pvt Ltd. (Snapdeal.com)

Snapdeal has quickly ascended to the mantel of an e-retailing giant through heavy discounts on the offered products in addition to a vigorous promotional campaign. It has recently added a channel to its site offering farming and agriculture inputs for farmers.

The store currently offers over hundred products across categories like seeds, irrigation and farming tools. However the seeds are mostly of horticultural plants (vegetables, flowers) and the machinery and hardware components are limited to sprayers and small hand-held tools with the pesticide segment being altogether absent. The fertilizers offered also fall in a narrow range.

What makes it so different?

The firm has started with some 300 SKUs (snapdeal kiosk units) to begin with and also plans to launch a Hindi version of the store.

In partnership with FINO Pay Tech, Snapdeal is set to tap into rural areas in India, reaching out to people living in slums like Dharavi in Mumbai and villages in Rajasthan and Haryana. Snapdeal plans to set up as many as 5000 e-commerce kiosks across 70,000 rural areas in India. These kiosks will include PCs and tablets for people to go online and shop and will also act as collection points for packages.

A FINO agent at the kiosk will login and help people shop for products across a wide range of categories including speakers, juicers, dinner sets and mobile phones. Snapdeals's Kunal Bahl believes that by tapping into the rural market, the company will be able to reach 50-100 million new customers in the next three years.

Snapdeal isn't the only company looking to enter into India's rural market. Both Amazon India and Flipkart have been in talks with the government to improve the India postal service with the objective of delivery times to be within 24 hours anywhere in the country. They also proposed

that the government should roll out better internet connectivity in rural areas which would in turn boost e-commerce in these areas.

SWOT ANALYSIS

STRENGTH: The brand (snapdeal) is well recognized in the field of e-retailing and is trusted for quality products, timely delivery and cheaper prices. The extensive logistics network enables it to cater to a wide area and will likely support in the development of new markets.

WEAKNESS: The brand has limited recognition in the rural areas of the country. The delivery of products is very time taking if viewed in the context of farming or gardening.

OPPORTUNITIES: The large number of potential customers and the popularity of the brand along with a suitably designed marketing mix can help in creation and expansion of the markets. The product range can be further diversified.

THREATS: Other popular entrants like FLIPKART, AMAZON are planning to make heavy investments and variations in the services and differentiation of the products is negligible when compared within the brands. This is likely to reflect poorly on the present and prospective customers. So far no special efforts have been made towards positioning and many people are still ignorant of the existence of this section in the website.

4.4 Challenges and Opportunities

CHALLENGES

The word hereby has been used in the sense of reference to a factor or circumstance in general, which results in difficulty to access the rural market. The peculiarities of rural markets and rural consumers pose challenges to marketersin reaching them effectively. There are a large number of small villages which are not easily accessible because of all weather roads. The main challenges of e-retailing are discussed below:

1) Transportation problems: Poor connectivity of urban production centers to remote villages via roads, railways or any other means, and transportation facilities are quite poor in terms of timely movement. Many parts of India have kuccha roads which are not suited to transport of bulk loads and also become unserviceable during heavy rains in monsoon. With many roads in rural areas not being accessible by vehicles, retailers will have to think about local delivery methods to reach isolated areas – often only accessible by a push bike. In addition to this, loading and unloading points also pose a problem for bulk carriers like railways.

2) Warehousing problems: A storage function is necessary because there is time gap between production and consumption of commodities and a sudden (fluctuation in) demand cannot be met without it; whereas the establishment of a warehouse in itself is often not very economical when there is a need to cover varying number of villages in the vicinity as it leads to the issue of built capacity.

3) Underdeveloped people and underdeveloped markets: Modern technology has tried to develop the people and markets in rural areas but has made a very small impact. The mobile phones are mostly being used to talk to family members living away from home and to some extent to assist in business. Although smart-phones are now being seen in villages due to technology diffusion within the populace but usage is mostly confined to prosperous house-holds and others are mostly unaware of newer innovations in ICTs.

4) Inadequate media coverage, many languages, low levels of literacy. Print medium is not much effective and it is irrelevant since its reach is poor. So, low level of literacy becomes a challenge for marketers in rural areas. The above mentioned factors also result in problems in designing a web platform which can facilitate interaction in easily understandable language for the large and diverse customer base.

5) Seasonal and uncertain demand: Seasonal demand is a problem of input market as well. Agriculture situation plays a significant role in the demand in rural markets because it is influenced by the crop being cultivated in the season which can vary from previous estimates in terms of acreage or an altogether different crop. Again agriculture depends on monsoon so the demand posed by rural consumers varies as per their geographical location and weather forecasts and buying capacity.

6) Poor connectivity of internet especially in remote or isolated areas of the country which aggravates the problem in development of infrastructure necessary to support and sustain the electronic networks.

OPPORTUNITIES

The word refers to the changing socio-economic situations which can potentially benefit the e-retailing section for agro-inputs. Some of the figures that may boost morale of the aspirants of this sector are as follows:

1. Sixty-one million users of mobiles in rural areas,
2. Seed market ($2.7 bn) expected to reach $4.7 billion by FY'2020
3. The Indian crop protection industry ($4.3 bn) likely to reach $7.5 billion by FY 2019
4. The agricultural machinery market ($4,887.3m in 2013) has been estimated to reach $9,718.4m by 2018.

A nationwide survey released in February said that rural mobile internet users grew by a staggering 93% during December 2014-December 2015, yet only nine percent of the hinterland had access to the technology. In comparison, 53% of urban areas had mobile internet connectivity and grew at 71% during the same period, thereby highlighting the urban-rural divide in the country.[3] Nonetheless, India hit 306 million mobile internet users in December 2015 growing at an overall 77% from 2014, according to the report released jointly by the Internet and Mobile Association of India and consultancy firm, IMRB. The report projected 371 million mobile internet users for the country by June 2016. Mobile internet penetration stood at 23% for the whole country, said the report. According to TRAI, there were 988.7 million mobile connections in India as on August 2015.

The report, Mobile Internet in India 2015, surveyed individuals from 35 Indian cities and towns, and found significant differences in rural and urban user behaviour on mobile internet. For 80% of the 219 million urban mobile internet users, online communication was the top reason for accessing the internet on their devices. Entertainment was top priority for only 30% of these users.

Among rural users, on the other hand, 52% said their primary reason for accessing the internet was entertainment. Communication and social networking stood at 37% and 39%, respectively. E-commerce in India has seen some big-ticket investments and glowing projections. Late last year, Goldman Sachs estimated India's e-commerce market to cross 100 billion USD by 2020.

The report said that only 13% urban mobile internet users and 1% rural users shop via mobile internet.

This growth was heavily driven by cheap smart-phones. With domestic producers selling smart-phones for as little as $70, millions of Indians have gone from having no internet connection to accessing it on their mobiles. Between 2014 and 2015, the sales in snapdeal saw a change from 5 percent to 18 percent in the orders made online. It's clear that a change in consumer shopping habits in India is moving swiftly from traditional channels to online platforms. Mobile transactions as a percentage of total online transactions were in single digits, but within 12 to 18 months, several companies reported 40% to 50% of their transactions now coming from mobile.

These figures show that awareness of internet facilities is not so uncommon in rural areas, only the usage is different. Efforts to spread awareness about mobile apps and usefulness in e-retailing may help to boost the e-commerce substantially in the rural areas for both agro and non-agro products.

The offerings for gardening/farming are likely to attract the attention of domestic households, both rural and urban especially the later as there has been increasing trend for methods like indoor, terrace and roof gardening and people are willing to beautify their homes using foliage and floral plants or for growing vegetables for consumption.

Chapter V

CONCLUSIONS

The first and second objectives yield the conclusion that the ICTs can influence the farming to a great extent. Demand for agricultural advice is high. Farmers offered the service are likely to turn less to other farmers and input sellers for agricultural advice. Management practices would change as well: we may observe an increase in the adoption of more effective pesticides, and reduced expenditure on less effective and hazardous pesticides. Hence the buying behavior of the farmers is also likely to change as they will move towards precision farming and the changes may lead to better farm management.

The studies regarding the third objective reveal the fact that the e-retail market in India is booming and recently attracting a lot of attention from foreign investors. There has been an increased fascination with agricultural sector in the last few years and many retail and e-retail giants are ready to make heavy investments in this sector. The increasing reach of internet facilitated by technologies like smart-phones, PCs or kiosks is proving successful in promoting e-commerce and with some effort can be used to incorporate the rural masses as well because there has been an increasing awareness regarding these technologies in rural context and people are willingly accepting the idea.

The idea of incorporating the agro-input market in the field of e-commerce seems interesting when viewed from the aspect of the vast and untapped potential. The rising level of consumer income, desire to produce more and preference for quality seeds, chemicals and other inputs would likely seem to create an ideal prospect for e-marketing. However implementation of the idea is a bit different story because of inaccessibility of the rural areas round the year by traditional means and logistics and need for a bit of innovative thinking arises as a result of this. The remoteness of a substantial portion of rural populace of the country, non-awareness or simply the disinterest and distrust are also some of the hurdles that need to be crossed.

The positioning strategies of the firms have so far been more focused towards the urban areas due to obvious reasons but the increasing competition has convinced them to expand their reach to rural areas for newer markets. As there is limited infrastructure they may be willing to invest in developmental activities in coordination with the governments.

The study of challenges and opportunities reveals the ongoing shift in the trends in retail markets of agro-inputs and the major changes and requirements for the development of infrastructure prior to successful incorporation of the rural areas in e-retailing markets.

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[1]Source: Internet Live Stats.
[2]Source: International Journal of Innovative Research in Computer and Communication Engineering Vol. 2, Special Issue 3, July 2014.
[3]Source: The Report, Mobile Internet in India 2015.