PROJECT REPORT

ON

STUDY OF THE PENETRATION AND EFFECTIVENESS OF THE ICT SERVICES DISSEMINATED TO THE RURAL POPULATION AND SUGGEST ICT APPLICATIONS.

Submitted to:

Champion Agro World

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DECLARATION

We, Mrinalini Singh and Shyam Dhadhaniya, hereby declare that matter embodied in this Project Report, submitted by us in partial fulfilment of the requirement of the award of M.Sc. Degree for ICT in Agriculture and Rural Development is a record of my own work carried out under the supervision of Dr. Ranendu Ghosh, Professor, Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, Gujarat. However, to do justice with the nature, scope and extent of this work, the available published/unpublished data have been incorporated/utilized, with due acknowledgement, to draw my own interpretation and conclusion.

We, further declare that the project report has not been published or submitted elsewere for the award of any other degree or diploma.

Place: Rajkot
Date: 05-06-2012
Gandhinagar, Gujarat

(Mrinalini Singh & Shyam Dhadhaniya)
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I wish to express my sincere gratitude to Mr. Dhirubhai(M.D, Champion Agro Ltd.), Mr. S. Sharma (C.O.O , Champion Agro Ltd.), Miss. Priyanka Prakash, Business Development Manager (Sales & Marketing/SAP Project Manager) and all senior officers of Champion Agro Ltd. for providing us an opportunity to work on the project — Study of the penetration and effectiveness of the ICT services disseminated to the rural population and suggest ICT applications to reach the farmers.

This project would not have been possible without the support, encouragement and patience of my project guide Mr. S. Sharma (C.O.O Champion Agro Ltd.), not to mention his advice and unsurpassed knowledge and experience. I would like to acknowledge the good advice and support of the officials and other staff members of DSC who has been invaluable on both an academic and at personal level, for which I am extremely grateful.

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- To all Field executives who had facilitated me while communicating with the farmers.
- All the farmers who has co-operated with me and given their feedbacks on means from where they get information required in agriculture and services they expect from an advisory centre.

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We would also like to thank our parents for their help, encouragement and blessings. And to God, who made all things possible. For any errors or inadequacies that may remain in this work, of course, the responsibility is entirely our.

ABBREVIATIONS

ICT	: Information and Communication Technology
FE	: Field Executive
3G	: Third Generation
SMS	: Short Message Services
RML	: Reuters Market Light
TV	: Television
Ha	: hectare
PC	: Personal Computer
RAEO	: Rural Agriculture Extension Officer
POP	: Package of Practices
KVK	: Krishi Vigyan Kendra
DDO	: District Development Officer
A/V	: Audio / Visual
PPP	: Public Private Partnerships
FAQ	: Frequently Asked Questions
NeGP	: National e Governance Plan
NGO	: Non Government Organization

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1. Introduction

About 103 million farm families cultivated 165 million holdings and spread over in more than 600,000 villages in 598 rural districts of the country; these are the characteristics of India, in the era of knowledge and information (Gautam et al, 2006). Despite of the low literacy rate (54.1%) and poverty the ICT is gaining ground and is revolutionizing the whole world. In the present Indian agriculture situation, any agriculture based organization possibly cannot provide additional qualified man power to adequately address the complex demands of the farmers by reaching to the millions of farmers. The development and dissemination of the ICT in rural sector in recent years would provide viable alternatives to overcome the physical barriers of face-to-face inter personal communication.

By definition, Information and Communication Technologies (ICT) are technological tools and resources to create, disseminate, store, bring value-addition and manage information with feedback. But the real problem comes when ICT has to reach the farmers community. In Indian agriculture sector many reputed organizations are working in ICT sector for Agriculture and Rural development.

Table 1.1: Different ICT based services in India

Organization	**Service**
Nagarjuna Fertilizers	I-Kisaan
ITC	E-Chupal
Rallis	Agri Services
Excel Crop Care	Help line (1800-2332332)
Amul	Amul samaj setu(1800-1024468)
Kisan Call Center	Help Line(1800-1801551)
TATA	M-Krishi
	I-Fasal

Champion Agro Ltd is a leading Agro Retail Company that has introduced the concept of Agro retail malls in Gujarat. Its chain of agro centers provides Agriculture-Inputs, Farm Machinery, Cattle Feed and other agriculture allied products. Beside this company also provides agronomic services including soil testing, crop inspection, weather forecasts and advisory services on farm credit, crop loan, life insurance and medical Insurance etc. This chain serves farmers by facilitating their all agricultural needs and provides free agricultural consultancy services ranging from sowing to harvesting of crops.

2. Objectives

1) Study of the scenario of present sources of information to the farmer's community and their effectiveness in terms of timeliness and reliability.
2) Suggest ICT application as per Champion Agro World business model.

3. Overview of the Study Area

Champion Agro World is having their retail outlets in seven districts of Gujarat. Among these districts Junagadh and Rajkot were allotted for project work.

3.1 Places Visited

As a part of field survey 10 centres of junagadh and Rajkot districts were covered. These places are the already existing retail outlets of Champion Agro World.

Viz: Jam kandona, Dhoraji, Manavadar, Keshod, Kanja, Visavadar, Mendarda, Bhesan, Upleta and Gondal. As shown in the figure below are the locations of these centres on map.

Figure 3.1: Map of Junagadh and Rajkot District

4. Research Methods

For the purpose of project, data was collected through primary source.

4.1 Primary Data

Personal interviews and group interview of farmers with the assistance of field executives (by the help of structured questionnaire).

4.2 Research Design

This is a kind of descriptive research study in term of time as it is a cross sectional study because study takes place at a single point of time. This part describes the methods and procedures used for the collection and analysis of data in the study, the specific methodology adopted for the selection of different units and other details are given below

4.2.1 Sampling method:

Simple random sampling method was done by having this view in consideration that both categories of farmer were covered. The farmers were personally interviewed with a structured questionnaire.

4.2.2 Sample Size:

In each centre, 4 villages were covered, and within each village 10 farmers. (Approximately, 6 customers and 4 non customers), thus covering a total number of 400 farmers (241 customers and 159 non customers).

4.2.3 Period of study:

The study was carried out from 15st January 2012 to 30th April 2012.

4.2.4 Analytical tools:

The collected data were complied and analyzed systematically through tabular analysis, graphs and charts by the help of Microsoft Excel, mean weighted method, regression analysis.

Mean weighted method.

To find out the most effective promotional activity, retailers were told to give their preference number to different activities. So each character got 1 to 6 preferences by different number of retailer. Preference number 1 will get maximum weight 6 and preference number 6 got minimum weights that is 1. We find weight mean for each characteristics using following formula.

Weighted mean = 6* n+5* n + ……..1*n/ total weight

Where, n= number of retailers chosen that activity

Total weight = 6+……..+1

5. Results and Analysis

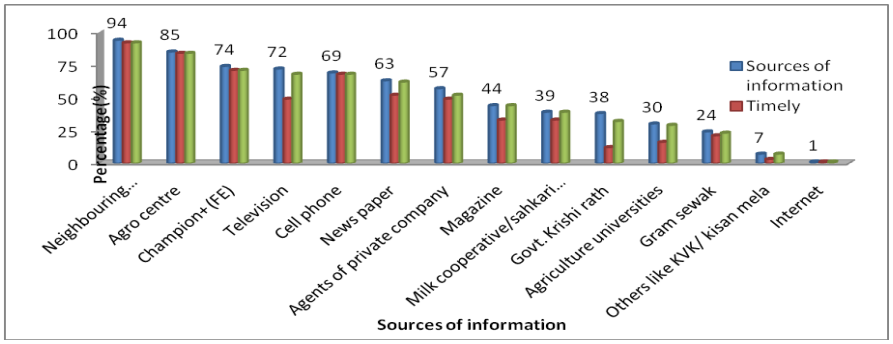
5.1 Information Requirement of Farmers

It is found that different types of information are needed by the farmers in different locations. The result obtained from the survey on the information needs can be used in future planning regarding the areas in which more work should be done. The requirement or demand for information on agriculture input is the maximum (100% for insecticide and fertilizer and 99% for new variety of seeds.) followed by market price (99%), new technology (96%), weather forecasting (95%), Govt. Scheme (87%), and loan (76%) only. others (8%). But unfortunately farmers are getting only the information regarding agriculture input only, as in the agriculture input sector the level of completion among the companies is very high. Information like the government scheme or subsidy, bank's policies, new technological advancement etc are the one which are required by them but hardly 5 % of the farmers are aware about it

5.2 Sources of Information

The perception of the farmer for the existing means of information used by them is shown by taking the timely and reliability aspect of the information source. It is seen that even though 94% farmers prefer their neighbour for taking information. The role of Agro centre and the field executive of Champion Agro World are significant for providing information as 85% and 74% farmers respectively prefer them. 63% farmers use news paper respectively and that to mainly for getting information on market price. A majority of farmers using mobile phone for information procurement i.e. 69% farmers uses mobile by making call to the field executive. The response for magazine is moderate among the farmers 44% use it and 5% think it to be reliable also. How much Agriculture University is concerned just 30% of the farmer had gone there to take information. During the survey it was found that farmers feel hesitation for going to university for their query and also they find it inconvenient for them to go so far just for some information. In that case they either prefer the local agro centre or their neighbour for assistance. The penetration of T.V, Radio, Internet and KVK was seen very less. The results are shown below in Fig 5.6.

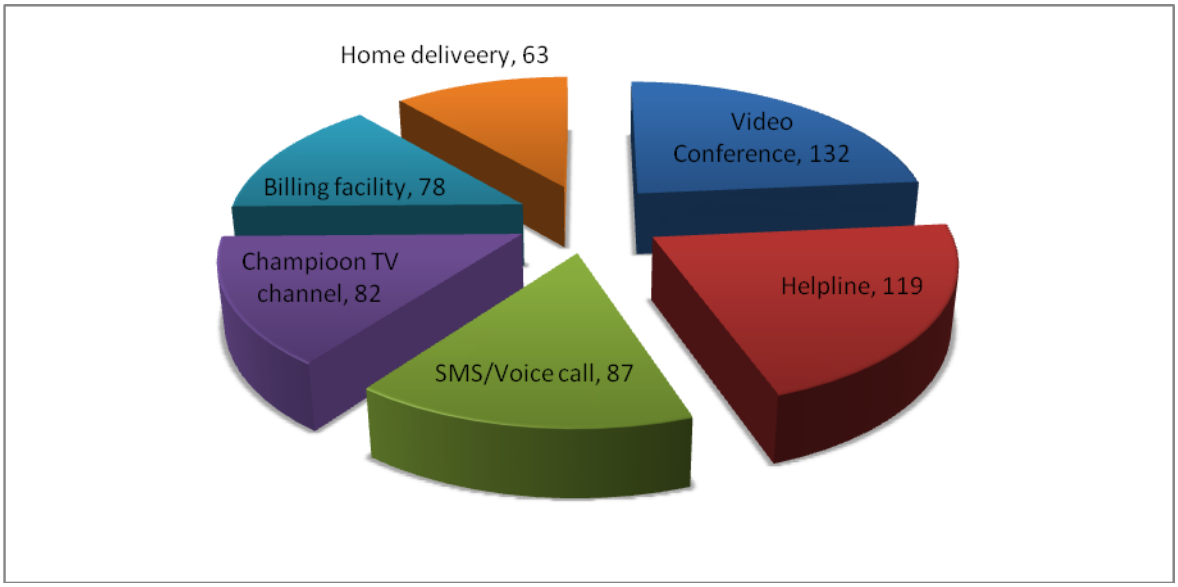
Figure 5.1: Different means used by farmers to get information



5.3 Preference of different ICT services given by farmers.

Farmers were asked to give preference to different ICT services based on their opinion and that result is shown below in the form of pie chart by the use of mean weighted method. By the analysis it became clear that video conferencing and helpline are most preferable means which farmers would like to adopt.

Figure 5.2: Preference of Different ICT Services.



5.9 Regression

From the primary data, we derived some regression relation between farmers' age, education and land holding verses adoption of technology.

1. Farmers' age and adoption of technology

2. Farmers education and adoption of technology

3. Farmers' land holdings and adoption of technology

5.4.1 Regression between farmers' age and adoption of technology

Table 5.1: Age Group and Technology Division

Age	Ranking	Adoption of technology	Ranking
20-30	1	Do not use	1
31-40	2	After 2-3 years	2
41-50	3	After 3 years	3
>50	4	Quickly adopt	4

Table 5.2: Regression between Age and Adoption of Technology of Each Taluka

Tahesil	R square	T stat
Jamkandorna	0.00	8.91
Dhoraji	0.02	6.95
Manawadar	0.14	4.62
Keshodh	0.00	5.50
Kanja	0.02	5.67
Visavadar	0.02	4.33
Mendarda	0.00	5.96
Bhesan	0.00	7.66
Upleta	0.04	6.19
Gondal	0.06	5.62
Average	**0.03**	**6.14**

Table 5.3: Regression between Age and Adoption of Technology of all Over Survey

R square	T stat
0.007	19.41

From table no. 5.9.1 and 5.9.2 we can conclude that adoption of technology do not have much more relation with farmers' age, because R square value should be near to 1, which is .03 and T stat value should be near to 2, which is 6.14

5.4.2 Regression between Farmers' Education and Adoption of Technology

Table 5.4: Education and Technology Division

Education	Ranking	Adoption of technology	Ranking
Non educated	1	Do not use	1
<10	2	After 2-3 years	2
11-12	3	After 3 years	3
Gradutes	4	Quickly adopt	4

Table 5.5: Regression between Education and Adoption of Technology of Each Taluka

Tahesil	R square	T stat
Jamkandorna	0.01	5.24
Dhoraji	0.07	3.13
Manawadar	0.02	4.17
Keshodh	0.02	2.27
Kanja	0.06	5.21
Visavadar	0.04	5.47
Mendarda	0.02	4.07

Bhesan	0.07	3.12
Upleta	0.03	2.85
Gondal	0.00	4.36
Average	**0.03**	**3.99**

Table 5.6: Regression between Education and Adoption of Technology of all Over Survey

R square	T stat
0.009449	12.06888

From table no. 5.9.1 and 5.9.2 we can conclude that adoption of technology do not have much more relation with farmers' age, because R square value should be near to 1, which is .03 and T stat value should be near to 2, which is 12.06

5.4.3 Regression between Farmers' Landholding and Adoption of Technology

Given table no. 5.9.7 shows result of regression between farmers' land holding and adoption of technology.

Table 5.7: Regression between Landholdings and Adoption of Technology of all over Survey

R square	T stat
0.015609484	41.44543622

From table no. 5.9.7, we can conclude that adoption of technology do not have much more relation with farmers' land holdings, because R square value should be near to 1, which is .015 and T stat value should be near to 2, which is 41.

6. Conclusion

In figure 5.3 farmers had given preferences to different ICT services and from the mean weighted method data are analysed and suggestion are provided as under

ICT applications:

- Video conferencing
- Champion TV channel
- SMS/ Voicemail
- Helpline
- Home delivery
- Billing facility

6.1 Video conferencing

The awareness among farmer about the recent technological advancement in agriculture field is very less so video conferencing is a good platform where farmers of all categories can connect themselves with the technical expert. It is preferred by 90% the farmers under the sample size as by this technology farmers feel that they can directly ask their query with the expert and can but their own views in front of them.

6.2 Champion TV channel

During the survey it was seen that even though farmers are aware about the programmes on T.V channel but due to their schedule it's not possible for them to regularly watch programmes, around 32% farmers don't watch and around 31% farmers watch twice or thrice a week only. 95% of farmers had agreed on the concept of a T.V channel where the same programme can be re-telecasted more than once in a day so that if they could not watch the programme in the morning show then at least they can watch it in the evening show around 7-8 pm when a majority of farmer are back from their field.

6.3 SMS/Voice mail service

As per the report of telecom ministry the tele-density in India is 74% and its penetration can be seen in the remote area also. Farmers today have mobile phone which can be the fastest means to reach them. The preference of farmers is more towards voice message as the handset of many farmers don't support gujrati text and since the education level is not much so it's not possible for them to read English thus maximum preference was given to voice message over text message by the farmers.

Figure: 6.1 Activity Diagram for Video Conferencing

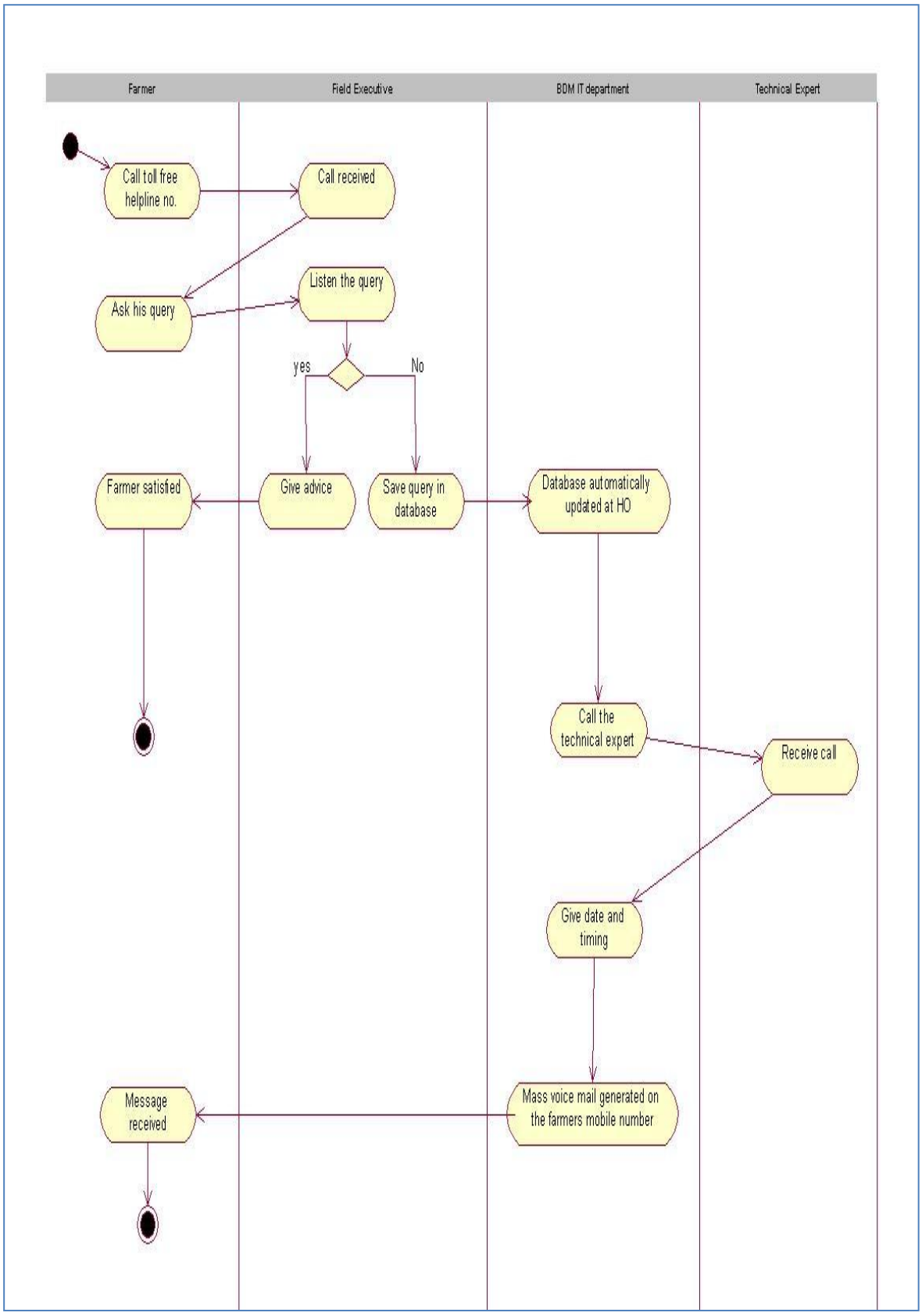
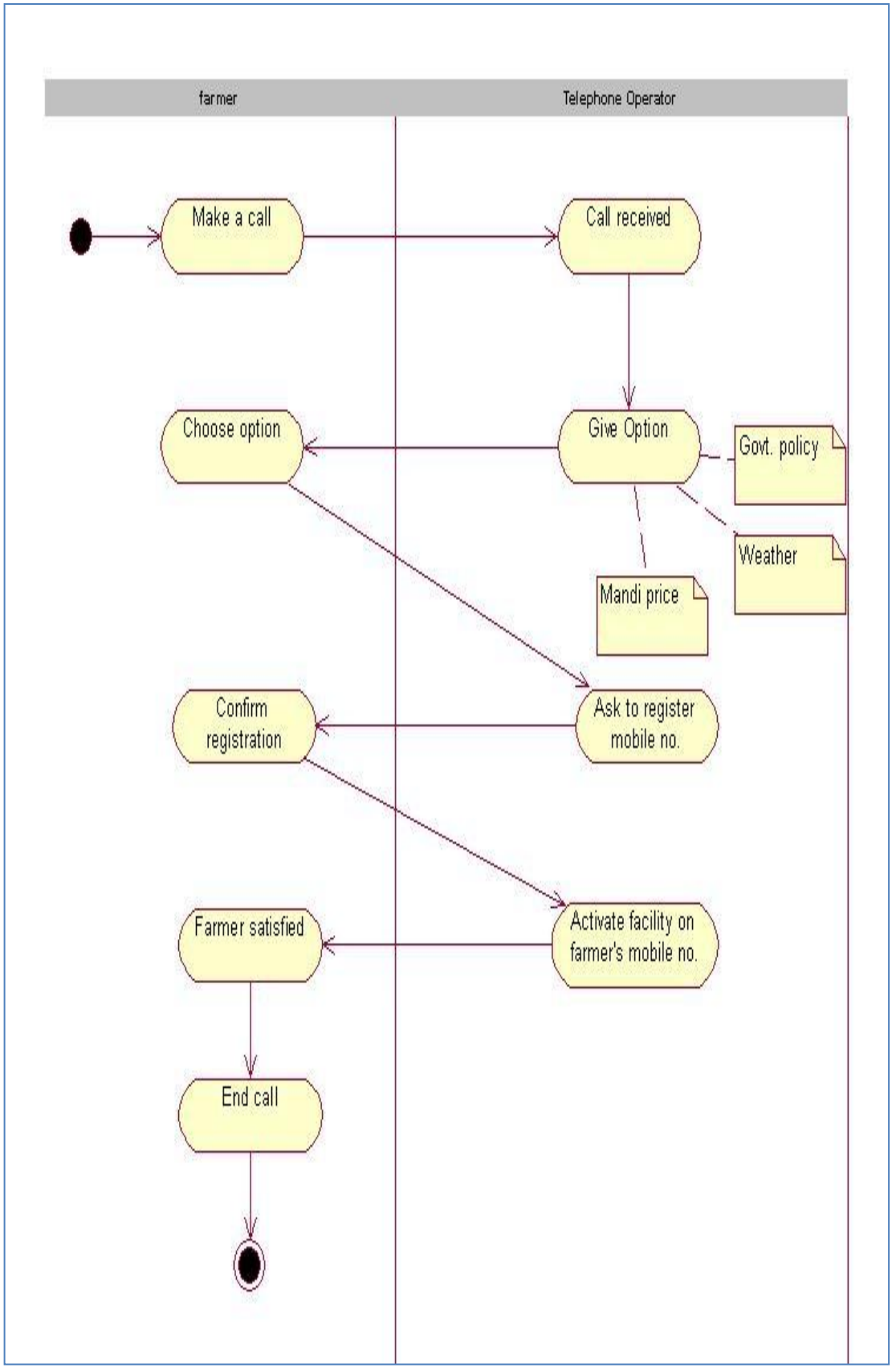


Figure: 6.2 Activity Diagram for SMS service



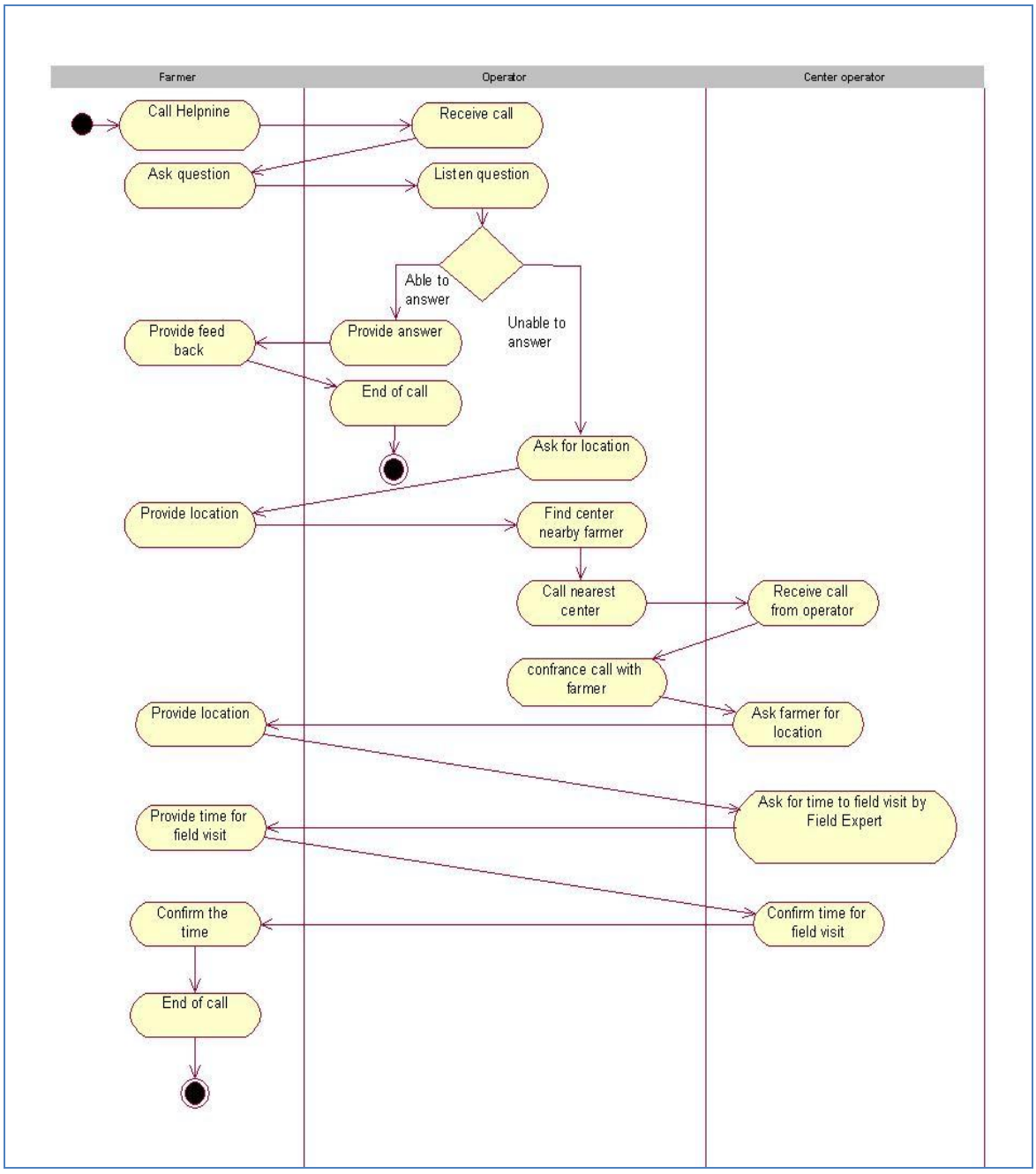
6.4 Helpline

Till now many initiative had been taken by Government and non-government organization for information dispersal by toll-free helpline numbers. Since earlier projects had made a negative impact on the farmers basically due to two major problems due to which the implementation of helpline becomes a tough job.

a) Network problem

b) Inefficient and less experienced technical expert.

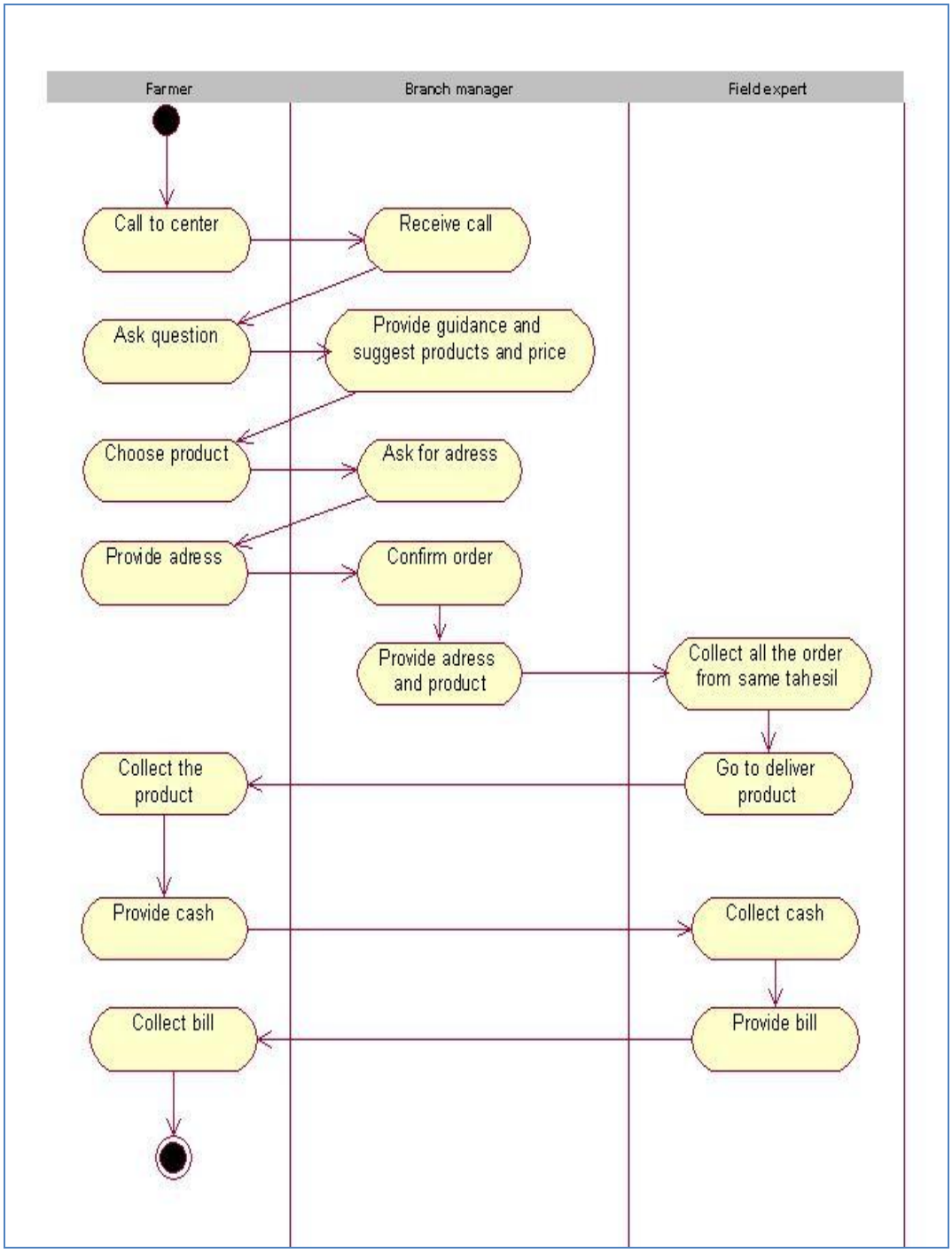
Figure: 6.3 Activity Diagram for Toll free Helpline



6.5 Home delivery

Most of the time farmers are going to agro centres nearby their village for purchasing any input. Now a day's very less number of agro centres is providing the materials to farmers' house or field. With this concept of home delivery all the inputs need of farmers will be provided to their home or field with one phone call to centre. Detailed working concept is shown below in figure no. 6.4.

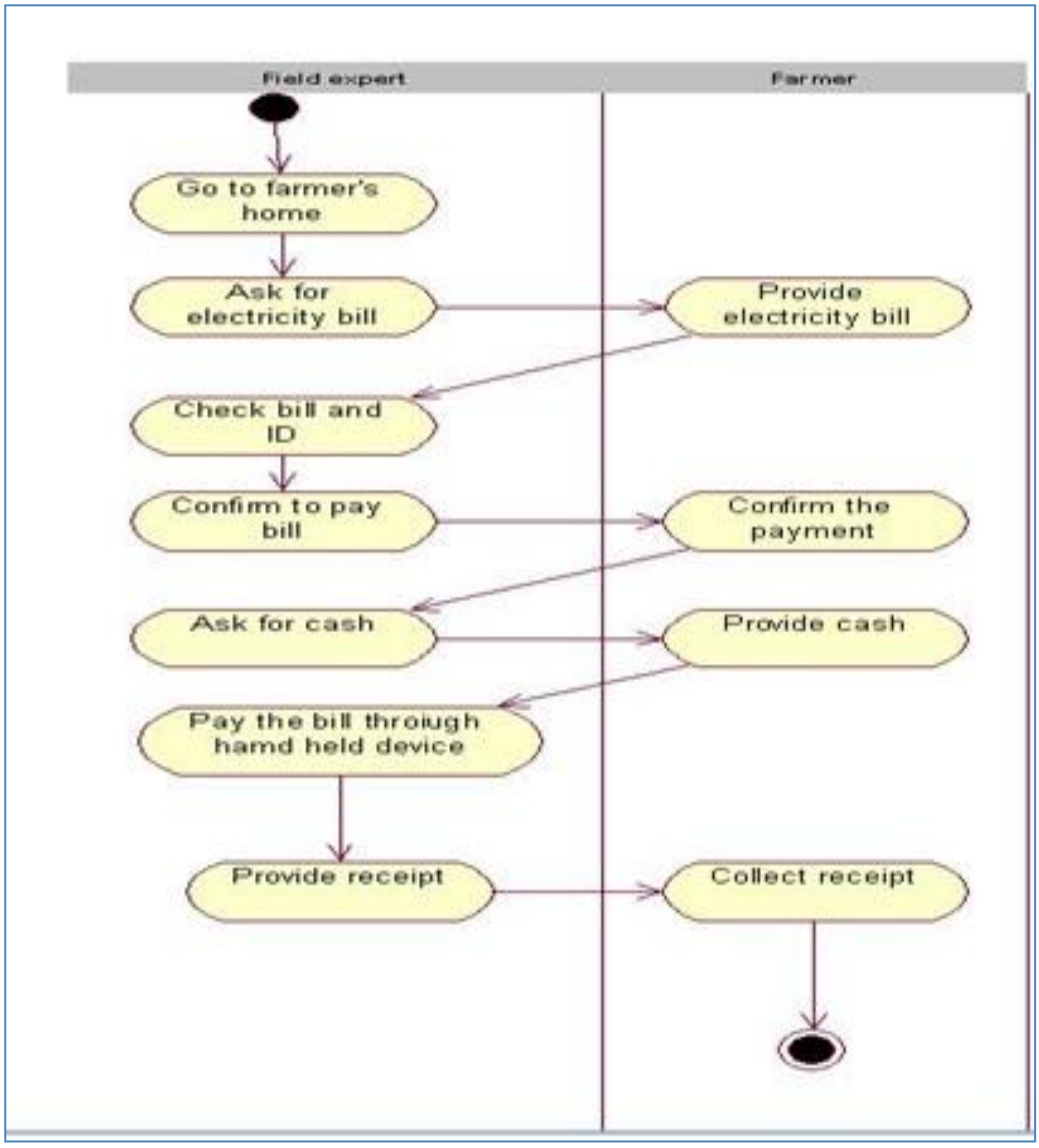
Figure: 6.4 Activity diagram for Home delivery



6.6 Billing facility

To pay electricity bill farmer have to go to either to gram panchayat or near taluka centre. With this facility field executive with hand held device reach to farmer and ask for electricity bill. The bill will be collected and receipt will be provided to farmer. Detailed working concept is shown below in figure no. 6.5

Figure: 6.5 Activity diagram for Billing facility



7. References

http://wiki.answers.com/Q/What_is_the_weighted_average_method)