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Constraints and suggestions experienced by the farmers in using Reuters market light (RML) services in Tamil Nadu state of India

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Abstract
Today a new paradigm of agricultural development is emerging at a faster pace. The old ways of delivering information and services to citizens are being challenged. Therefore, to satisfy the need of information and knowledge, a venture promoted and supported by Thomson Reuters, Reuters Market Light (RML) offers highly customized and localized agricultural and related information service through mobile phone-via Short Message Service (SMS) to the farmers. The study was carried out in the Erode district of Tamil Nadu State. In this District Reuters Market Light (RML) utilizes Pallavan Grama Bank (Agricultural Rural Bank which is sponsored by the Indian Bank) to distribute the messages. Major constraints faced by the RML users were lack of information about multiple crops and other markets, payment for the information, untimely receipt of message *etc.*, and the major suggestions were keywords to provide information for more than one crop in many markets. *e.g.* short terms like Ed for Erode and Bn for Banana.

Highlights

- The study was done in the Erode district of Tamil Nadu state.
- 180 respondents were selected for the study by using Stratified Random Sampling with Proportional allocation method.
- Major constraints faced by the RML users were lack of information about multiple crops and other markets.
- Major suggestions were use keywords to provide information for more than one crop in many markets. *e.g.* short terms like *Ed* for *Erode* and *Bn* for *Banana*.

Keywords: Reuters market light, short message service, gratification, constraints, mobile telephone, Pallavan Grama bank

Introduction

The new paradigm of agricultural development in India necessitates incorporation of Information Technology for driving over all societal transformation. Information technology revives the social organizations and productive activity of agriculture, which if nurtured effectively, could become transformation factor. Agricultural extension, in the current scenario of rapidly changing world, is recognized as an essential mechanism for delivering information and knowledge packages as input to modern farming, harnessing ICTs in agricultural development is inevitable. The agricultural community in rural India is beset by many infrastructural constraints such as lack of roads, access to regular water for irrigation, poor tele-density (varies state to state), and other agricultural technologies (Chadha, 2009) [5]. Besides, the vulnerabilities of small and marginal farmers further increase due to lack of access to formal education and training, low levels of accumulation such as savings and other types of assets with few linkages to formal credit and insurance, unavailability of genuine and affordable agricultural inputs like seeds and fertilizers, and unfriendly public policies such as Agriculture Produce Marketing Act (APMA).The Green Revolution gains of the 1980s also have not been sustainable into the 1990s. Farmers from successful Green Revolution regions report unsustainable agricultural production and need increasing levels of inputs to maintain or increase the falling yields compared to the 1980s (Sundaresan, 2009) [6].

Analyses of the agricultural sector in India revealed important insights about the bottlenecks that constrain agricultural productivity and earnings in India. Small farm landholdings, inadequacies in the quality of crop farming, trader dominance in agricultural produce marketing, and relatively rigid food consumption patterns at the household level tend to undermine the growth of the agricultural sector in India. According to the agricultural development process cycle, such characteristics make Indian agriculture predominantly a commodity oriented and supply-driven system and hence the market-orientation is lacking

(Anandaraja *et al.*, 2009) [1]. In such a scenario, to information for farmers becomes a critical factor overcome the various bottlenecks and resulted improvement in yields using cost effective and timely agricultural inputs, in the form of alerts on crop advisory and climatic conditions, and to improve earnings based on market prices and relevant market and policy news. While there are various factors that contributed to low productivity and growth rates in rural India, the mitigation of information asymmetry, can, to some extent, facilitate farmers in achieving agricultural productivity and wealth creation (Agriculture Today, 2009) [2, 5-6].

Hence, a venture promoted and supported by Thomson Reuters, Reuters Market Light (RML) offers highly customized and localized agricultural and related information service. Using a subscription model, RML provides information services via mobile phone- based Short Message Service (SMS) primarily aimed at farmers. RML SMS covered localized weather forecasts, crop advisory, proximate market data and crop prices; in addition to relevant policy and national and international news. With such information, a farmer subscribing to the RML service is equipped to overcome the information asymmetry that impedes agricultural communities' growth and earnings, especially in the context of falling yields. Equipped with information, farmers can thus make informed decisions about their agricultural practices and sales and will be able to create wealth through a rise in agricultural productivity and income while waste and market inefficiencies are likely to be minimized. With the hope to spark the ideas to mobilize the convergence of ICT in agriculture, the present research has been carried out to investigate various researchable issues to delineate the pre-requisites of a sound strategy of ICTs in agriculture. Since RML operates in the study area for the past three years it is important to study the constraints experienced by the registered RML users in utilizing the market price information provided through SMS. So as to give some possible suggestions to improve the "Constraints and Suggestions experienced by the farmers in using Reuters Market Light (RML) services in Tamil Nadu state of India" was designed and executed.

The specific objective of the study was to identify the constraints faced by the farmers in using the Reuters Market Light services.

Materials and Methods

Sample Collection

The study has been carried out in the Erode district of Tamil Nadu state. Among 32 districts of Tamil Nadu, Erode district was identified as the study area of this district which constituted a major group of beneficiaries of Reuters Market Light (RML) through mobile telephones. The total number of farmers service accounts enrolled in Reuters Market Light (RML) was 3837 farmer service accounts as on 31st March, 2013 which is presented in Table 1.

Table 1: List of registered farmers of RML in Erode District

S. No	Name of the banks	Registered users
1	Ammapettai	253
2	Anthiyur	378
3	Aapakudal	230
4	Athani	311
5	Erode	355
6	Ganapathipalayam	290
7	Kasipalayam	243
8	Kavindapadi	218
9	Kodumudi	275
10	Sivagiri	335
11	Thuckanaickanpalayam	206
12	Vettaikarankovil	262
13	Muthur	234
14	Chikkarasampalayam	247
	Total	3837

***Source*:** Pallavan Grama Bank Head Office, Salem, Tamil Nadu state, 2012.

Selection of Banks

In Erode District of Tamil Nadu Reuters Market Light (RML) utilizes Pallavan Grama Bank (Agricultural Rural Bank which is sponsored by the Indian Bank) to distribute the messages. RML gets the farmers' data base from the Pallavan Grama Bank and in terms it sends the messages to farmers'. There are fourteen Pallavan Grama Banks functioning in Erode District. All the fourteen banks were selected for the study, from these fourteen banks 180 respondents were drawn by using the Stratified Random Sampling with Proportional allocation method.

Selection of Respondents

Stratified Random Sampling with Proportional allocation sampling procedure was adopted to draw suitable number of respondents from each of the 14 Banks in the Erode District. Accordingly 180 respondents were selected in that 12 respondents from Ammapettai, 18 respondents from Anthiyur, 11 respondents from Aapakudal, 14 respondents from Athani, 17 respondents from erode, 14 respondents from Ganapathipalayam 11 respondents from kasipalyam, 10 respondents from kavindapadi, 13 respondents from kodumudi, 16 respondents from sivagiri, 10 respondents from thukanaikanpalayam,12 respondents from vettaikarankovil, 11 respondents from muthur, and 11 respondents from chikkarasampalayam by using Simple Random Sampling without replacement method with the help of Random number table.

The details regarding the distribution of respondents in the selected banks of the Erode district is furnished in Table 2.

Table 2: Distribution of respondents in the Erode District

S. No.	Pallavan Grama Bank Branches	Selected respondents
1	Ammapettai	12
2	Anthiyur	18
3	Aapakudal	11
4	Athani	14
5	Erode	17
6	Ganapathipalayam	14
7	Kasipalayam	11
8	Kavindapadi	10
9	Kodumudi	13
10	Sivagiri	16
11	Thuckanaickanpalayam	10
12	Vettaikarankovil	12
13	Muthur	11
14	Chikkarasampalayam	11
	Total	180

Then Simple Random Sampling without replacement procedure was adopted, with the help of Random number table the respondents who availed the Reuters Market Light (RML) service through the mobile phone Short Message Service (SMS) were selected for the study. The collected data was analyzed with appropriate statistical tools (SPSS) and techniques. The salient findings of the study are given below.

Results

Table 3: Distribution of respondents based on the Constraints experienced (n=180)*

S.No.	Constraints	Number	Per cent
1.	Lack of information about multiple crops and other markets.	152	84.44
2.	Payment for the information.	140	77.77
3.	Untimely receipt of message.	125	69.44
4.	Lack of prior information about non – availability of information on holidays.	109	60.55
5.	Lack of prior information for many grades of crop.	98	54.44
6.	No information on demand for commodities in various markets.	80	44.44
7.	Lack of information on price fluctuations over a period of time for a particular crop.	71	39.44
8.	No provision for getting past market data through SMS based queries.	66	37.00
9.	No direct tips or suggestions provided for better marketing of produce.	64	35.55
10.	No information is provided about potential traders in various markets for relevant commodities through SMS.	60	33.33
11.	Lack of information about supporting services like logistics and storage.	58	32.22
12.	No price forecast service is provided by RML.	54	30.00
13.	Lack of information about total quantity of arrivals in a market.	53	29.44
14.	No information provision on commodity specific Auctions to be held in a market.	50	27.77
15.	Lack of clarity on price fixation in markets.	46	25.55

*Multiple responses

Discussion

Constraints experienced by the registered RML users

The constraint perceived by the RML users in utilization of the market price information provided through short message service is presented in Table 3.

It could be concluded from the Table 3 that lack of market information about multiple crops and other markets were foremost problem as perceived by more than eighty per cent (84.44 per cent) of the respondents, it is due to the reason that RML SMS was customized to provide information on wholesale price for one crop and two markets. It is followed by the constraint of payment for information (77.77 per cent) because, as they thought the information should be free or amount charged should be minimum as like the Dynamic Market Information by the Tamil Nadu Agricultural University. The present findings are contradiction with the findings of (Asadi Ali *et al.*, 2010) [3]. Who had reported that majority 72.00 per cent of wheat growers were highly willing to pay for agricultural based short message services.

Untimely receipt of message was another constraint reported by nearly seventy per cent (69.44 per cent) of respondents which inferred that the respondent were not satisfied with the timeliness. The SMS form RML was sent to all the receivers by evening time every day, respondents expressed that receiving market price information in the late afternoon was not very useful for them. Further, they felt that receiving the market price information in the morning time would be of great use to them for making decision about marketing of their produce.

Lack of prior information during holidays or some other days (60.55 per cent) was mentioned as another important constraint faced by the respondents, followed by the non-availability of price information for different grades of commodity reported by them as an important constraint by 54.44 per cent of the respondents, 44.44 per cent of the respondents reported non-availability of information on prevailing demand for their produce in various markets in terms of quality and quantity was another important constraint faced by them. The present findings are in line with that of (Balasubramaniam. 2011) [4]. who also reported that most of the Dynamic Market Information users were faced constraints like no prior information about the holidays and the untimely receipt of the message *etc.*,

Lack of information about price fluctuations in a particular commodity over a period of time was identified as a constraint by 39.44 per cent of the respondents, followed by

37.00 per cent of respondents who reported lack of provision for getting previous data/information by sending a SMS requests through mobile telephone. RML did not provide any direct tips or suggestions for better marketing of produce and this was reported as a constraint by 35.55 per cent of the respondents.

No provision of information about potential traders for specific commodities in various markets was mentioned as a constraint by 33.33 per cent of respondents. Non-availability of information about marketing support services like packaging, logistics and storage facilities as relevant to the markets were reported as another constraint by 32.22 per cent of the respondents. RML did not provide any price forecast information on the perishables and it is felt as a constraint by 30 per cent of the respondents.

About thirty per cent (29.44 per cent) of the respondents expressed the non-availability of information on specific commodity total quantity of arrivals was another constraint they experienced during marketing, they felt this as a constraint because such information on commodity arrivals may enable the farmers to make choices about the right market for selling their produces. Non-availability of information on details of commodity specific auctions was another constraint perceived by the respondents it includes time of auction, date of auction and venue of auction etc., The information provided by RML did not provide any clarity on price fixing done in a market for a commodity, since farmers lacked the knowledge on various attributes of price fixing it is expressed as a constraint by 25.55 per cent of the respondents.

Suggestions recommended improving the service provided through Reuters Market Light (RML) information

The suggestion obtained from the farmers to overcome the constraints experienced by them in using RML and also to improve the overall service provided by RML were analyzed and the results are tabulated in Table 2.

Providing market information for more than one crop

Farmers in Erode district following multiple cropping systems therefore they preferred to get the market price information for more than one crop. Some of the farmers knew that providing market price information for many crops *via* SMS is not possible because of limited character provision. RML service providers to use abbreviations.

Providing Information should be in need based

Farmers were willing to get the need based messages in their regional language (Tamil), instead of receiving all kind of messages. The service providers should be periodically updated with needs of the farmers through phone calls or through messages, messages should be tailored according to the farmer's needs.

Timely dissemination of information

The market price information provided by RML is collected by the market analysts placed in each of the markets in the morning hours during the peak marketing hours. The data collected were gathered and organized at the RML project implementation centre. The information is encoded as SMS and sent to the registered RML short message service receivers by the evening. To reduce the time consumed by this process special information uploading devices (for instance laptops) can be provided to the market analysts which enable them to upload the data collected in the morning directly strengthening linkages so that market information can quickly reach to the farmers. Prior information about the holidays to be provided to the farmers' so that they might not expect the messages.

Table 4: Distribution of respondents based on the suggestions recommended by them (n=180)*

S. No.	Suggestions	Number	per cent
1.	Use keywords to provide information for more than one crop in many markets. *e.g.* short terms like Ed for Erode and Bn for Banana	153	85.00
2.	Information should be in need based	144	80.00
3.	Disseminate the SMS early in the forenoon.	123	68.33
4.	Inform the non-availability of information prior to one day by sending an SMS.	102	56.66
5.	Provide market price for many grades of a particular commodity.	98	54.44
6.	Provide plethora of information on through Interactive Voice Response System (IVRS), ▪ Market information ▪ Demand information ▪ Potential traders ▪ Commodity arrivals ▪ Auction Details	88	48.88
7.	Provide market and price trend analysis over periods in graphical forms.	84	46.66
8.	Send alerts on agricultural inputs and other products which are new and useful to the farmers.	78	43.33
9.	Provide daily tips on various aspects of agriculture.	71	39.44
10.	Increase the promotional activities for RML. *e.g.* Advertisements on RML through any media.	64	35.55

* Multiple responses

Suggestions were listed based on the level of preference by the farmers.

Market price information for many grades of a single crop

RML provides market price information for only top grades of a crop. Most of the farmers do have other grades of a specific commodity and hence collecting and providing information for different grades of a commodity will be of significant use to the receivers.

Interest in getting plethora of information through Interactive Voice Response System (IVRS): Most of the farmers are interested in receiving information about

Market information - Information about commodity specific potential markets where farmers can get a fair price for their produce

Demand information - Information about existing demand for farmers produces in various markets.

Potential traders details	-	Information about potential traders would enable easy marketing of produce by the farmer and also strengthens farmer-trader linkage,
Commodity arrivals	-	Details on daily arrival of total quantity of a commodity in the markets,
Auction Details	-	Regular information on auctions to be held in various markets, *via* mobile telephony. Hence developing an *Interactive Voice Response System* (IVRS) would be best possible suggestion to overcome these constraints. IVRS is a successful tool through which dissemination of information about more than one domain over a single platform is possible and made easy.

Interactive voice response system (IVRS)

Interactive Voice Response (IVR) is a technology that allows a computer to detect voice and dual-tone multi-frequency signaling (DTMF) keypad inputs. IVR technology is used extensively in telecommunication, but is also being introduced into automobile systems for hands-free operation. Current deployment in automobiles revolves around satellite navigation, audio and mobile phone systems. In telecommunications, IVR allows customers to access a company's database *via* a telephone keypad or by speech recognition, after which they have access to the own inquiries by following the instructions. IVR systems can respond with pre-recorded or dynamically generated audio to further direct users on how to proceed. IVR systems can be used to control almost any function where the interface can be broken down into a series of simple menu choices. In telecommunications applications, such as customer support lines, IVR systems generally scale well to handle large call volumes.

The following are some of the more common uses of an IVR

- Mobile - Pay-As-You-Go account funding
- Telephone banking - balance, payments, and transfers
- Mobile purchases - particularly for mobile content, such as ring tones and logos
- Caller identification and routing
- Order placements - credit card payments
- Airline-ticket booking, flight arrivals, flight departures, check-in
- Adult entertainment - dating, chat line, etc.
- Weather forecasts

The use of IVRS would make a significant impact over the agricultural information dissemination scenario and their utilization scenario in India. Utilizing theses technologies in disseminating superabundance of market information would be of a great helping hand rendered to the successful farmers who have failed in successful marketing of their produce.

Conclusion

The present agricultural production system in India is mainly a supply-oriented model and is in a phase of 'commoditization', in the agricultural development process cycle. The business concept and model of RML, through its information and advisory services to farmers and others, would contribute to the vertical integration of the agriculture sector with the increasingly organizing retail and other industry sectors and also to the value additions to the agri-production activity. Hence, RML would likely contribute towards the 'commercialization' of the agricultural sector by removing market imperfections and inefficiencies and thereby lead to higher productivity and earnings for farmers in future. By providing value-add services, like RML's agricultural advisory in rural areas, mobile service companies will penetrate an unexplored and underserved but vast rural market of consumer groups who are in need of such services. In this context, RML should recognize the scope for lateral expansion of its target consumer groups. To be truly beneficial to the massive rural population, including low-income farmers, RML must establish partnerships, particularly with the agriculture-related service providing companies, to fill the missing links in the entire ecosystem. RML has a lot of opportunity to shape the way farmers think and practice cultivation. The crop advisory information can and should include actionable advice on sustainable agricultural practices. The information that RML sends not only has the potential to make a difference to a farmer's bottom line, but to the nation's food security and the environment. The value of information is universal and paramount. Providing information to those who do not have access to it and who are in critical need is an important service, independent of the specific benefits to farmers. Value additions in the Indian agriculture sector as well as value added services in the mobile phone industry are in urgent need of attention – and both hold promise for improving the situations of farmers, while creating value for several stakeholders including the mobile service companies and content aggregators like RML.

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