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Ethiopian Commodity Exchange (ECX)-Linking farmers to the market

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Abstract

Agriculture was the main source of income for Ethiopia, but the sector was not well developed. Like the agriculture the agricultural marketing was also backward. It is characterized by insufficient market information, poor quality, unstable price, lack of trust among trading partners, and uncoordinated markets. Ethiopian commodity exchange (ECX) is one of the endeavors by Ethiopian government to move forward the agricultural market through the application of information and communication technology tools. This paper describes ECX market information system, particularly the effectiveness of the system in connecting the farmers to the market. The impact of the ECX system on the life of the farmers is studied in particular. The paper conducted a quantitative survey of thirty farmers and an in-depth qualitative interview of four selected respondents.

The findings of this article show that ECX system has a major impact on the life of the farmers. Improving the quality of the information with regard to completeness, relevance, timely and appropriateness of presentation will not only increase the effectiveness of the system but also lead the beneficial farmers to adopt a better life. This paper argues that the infrastructures at the back of the ECX system are major factors in deciding the effectiveness of the system in connecting farmers to the market.

Key words: agricultural market information, Farmers, Commodity exchange, information need

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Introduction and Background

Ethiopia located in the horn of Africa is a landlocked country with a population of around 73.9 million (central statistics authority, 2007). Being one of the ancient countries in the World the country has its own language, Alphabet, and Calendar which makes it unique. The calendar is based on the Coptic calendar and is roughly eight years behind the Gregorian calendar. Around 83 languages are spoken in the country.

Ethiopia's economy is largely dependent on agriculture. 85 % of the population is employed on this sector one way or another for living. The sector is not well developed and much of the produce is produced by small scale farmers. The main agricultural products are Coffee, Maize, Wheat, Teff, chat and Sesame.

Like the agriculture the agricultural market in Ethiopia is based on old tradition. It is characterized by insufficient market information, poor quality, unstable price, lack of trust among trading partners, and uncoordinated markets. The lack of market information is characterized by highly fluctuating prices and huge price overhead on the consumers. Farmers are getting only a small portion of the profit margin due to the existence of multiple brokers at every stage of the market chain.

The world is in Information and Communication Technology era where ICT is at the back and front of every sector to assist countries economy. As part of the Globalization effort the Ethiopian government has made ICT one of its strategic priorities (www.eictda.gov.et). Since the Ethiopian Government development policy is based on the Agricultural led Industrialization (ADLI) lots of investments are made in the ICT sector to assist the country small scale farming to transform Ethiopia's predominantly subsistence-Agriculture economy and society in to an Information and knowledge-based economy and society, effectively integrated in to the global economy. The Government has designed an ICT policy and strategy to transform the agriculture and achieve an efficient, productive, reliable and sustainable socio-economic development by facilitating good governance and transparent democratic system.

In The Millennium Development Goal 8 "Develop a global partnership for development" one of the targets is make available the benefits of new technologies, especially information and communications in cooperation with the private sector (UN website, 2009). Hence one way to discover and improve the effect that potential Information and communication Technology could have for the development of the agricultural sector and the economy in general is to look at the different factors that determine the output of ICT4D investments. The government of Ethiopia has made lots of investment to support the agricultural sector with Information communication technology (ICT) to assist the country small scale farming. One of these huge investments is Ethiopian commodity exchange (ECX). ECX which started trading operations in April 2008 is a new

initiative for Ethiopia to revolutionize Ethiopians tradition bound agriculture through creating a new marketplace that serves all market actors, from farmers to traders to processors to exporters to consumers.

Research Question and Objective

The aim of this study is to describe the Ethiopian commodity exchange market information system, particularly the effectiveness of the system in connecting the farmers to the market. In order to answer this, the paper compares the completeness, accuracy, relevancy, timeliness, and appropriateness of presentation of the current system with the previous system.

In doing so, the paper has four sections: the next section provides a literature study on agricultural information system and commodity exchange. After that I will describe a brief feature of agricultural market in Ethiopia and the Ethiopian commodity exchange system. Then I will demonstrate the methodology used to conduct the study followed by analysis and findings and finally my conclusions will be presented.

Agricultural information system

According to Rölíng agricultural information systems is a system in which agricultural information is generated, transformed, consolidated, received and fed back is generated to underpin knowledge utilization by agricultural producers. Agricultural information's systems should accommodate quality information for the users.

The importance of information quality has been recognized by many researchers as a key ingredient in evaluating a successful system. It concerns the dimensions of the information in particular, as suggested by Bailey and Pearson (1983), the accuracy, format (Magal 1991; Rainer and Watson, 1995; Myers et al. 1998), currency, timeliness (Mahmood, 1987), precision, completeness, conciseness, reliability, relevance , (Heeks and Alemayehu , 2006) completeness , accuracy , relevance , timeliness and appropriateness of presentation. According to Heeks and alemayehu Lack of access to information – especially information which is complete, accurate, reliable, timely, and appropriately presented – exposes individuals and communities to vulnerabilities and to poverty.

A commodity exchange is defined as a central market place where sellers and buyers meet to transact in an organized fashion, with certain clearly specified and transparent rules In its wider sense, a commodity exchange is any organized market place where trade, with or without the physical commodities, is funneled through a single mechanism, allowing for maximum effective competition among buyers and among sellers. (Gebre-Madhin, 2005).

Today there are various types of public or private market information and commodity exchanges systems. Following the liberalization of the agricultural market in most of sub-Saharan African countries market information and commodity exchange systems are introduced. Such as Kenyan commodity exchange, Malawi commodity exchange, Zimbabwe Agricultural commodity exchange, and Uganda commodity exchange. These systems mostly rely on communication Medias like TV, Radio, Press and modern ICT tools like mobile phone and Internet for the dissemination of information.

The establishment of such institutions makes markets work better for all market actors by providing information on what commodities to produce, what technologies to apply for production, when to produce, for whom to sell, when & at what price to sell, how to find willing buyers, and to plan for the future and make better decision. (Kundu , Wambua , Fwamba, 2007 and Tollens 2006). For example the Kenyan Agricultural commodity exchange (KACE) established in 1997 to link sellers and buyers provides reliable and timely information. The components used by KACE includes Rural based market information points (MIPs) , District level market information center (MICs) , Mobile phone short messaging service (SMS) , Interactive voice response (IVR) , Email & website and mass media.

Features of Ethiopian Agricultural market and Ethiopian commodity exchange (ECX)

Historically the Ethiopian market was regulated by government control parastatal agency, Agricultural Commodity Market (ACM) for sixteen years. This agency sets fixed pan territorial grain prices, restricted private inter regional grain movements, limited private sector participation and a producer grain quota which had in effect depress the rural incomes and production for a long time. (Gebre-Madhin, 2005).

In the early 1990's a dramatic reform has taken place which eliminate the quota system and privatize the sector Like most of the sub- Saharan African countries, the liberalization of Ethiopian agricultural commodity market had been taking place more than two decades ago. The main purpose of the liberalization is to free market pricing, increase efficiency of the agricultural market and to restore private trade.

Recent studies that evaluated the impact of this reform showed that some of the objectives have been met. (G/medhin, 2006) However, these studies also pointed out the reform did not have the predicted impact due to persistence of the volatility of prices and high transaction costs due to weak access to transport, telecommunications and storage infrastructure. ECX , Ethiopian Commodity Exchange was established in April 2008 as a solution to the above mentioned problems of Ethiopian agricultural market. ECX vision is to revolutionize the Ethiopian agricultural market through creating a central market place where buyers and sellers come together to trade, assured of quality, quantity , payment and delivery. ECX mission is to connect all buyers and sellers in an efficient, reliable and transparent market by harnessing innovation and technology.

The application used by ECX consists of trading and market information electronic database developed on SQL server and centrally located at ECX head offices which are electronically connected to all warehouses, bank, global exchanges ,CME (Chicago Mercantile Exchange) , NYBOT (New York board of trade) global data providers and electronic display board. This system is implemented under the Ethiopian telecommunication infrastructure broadband internet access, telecom network, dial up, wireless broad band and fixed line telephone. **Appendix II** of this paper briefly describes the trading and marketing system of Ethiopian Commodity Exchange.

Methodology

The general objective of this paper is to examine the Ethiopian commodity exchange market information system, particularly the effectiveness of the system in connecting the farmers to the market. The theoretical perspective of this paper was interpretative case study. The interpretive approach aims to understand information systems from the point of view of the participants who are directly involved, and it explicitly excludes investigation of the context of those systems. (Richard Heeks, 2002). It is interpretive in the sense that it aims to understand the ECX system from the view of users specially farmers and does not attempt to investigate the ECX system context.

The methodology followed to conduct the study was mix of literature review, document analysis, interview and questionnaire. These methods were selected because it allows me to identify the information needs of farmers in short period of time. Mixed method research offers merit to looking at a research situation from many different angles and means, which when used properly can only provide a more robust consideration of the problem. (Anaf and Sheppard, 2007)

Literature studies are conducted (Gebre-medhin2005, Kalusopa 2005, kaundu , wambua , fmamba 2007 , and Tollens 2006). The articles were identified from Google scholar and elin database through Orebro university library academic gateway (Oates, 2006; p. page 78-80). The literature study was based on keywords like agricultural market information, Farmers, Commodity exchange, information need and different country names like Kenya, India and Ethiopia. The collected articles are used to get deeper understanding on the issue of agricultural market information system and commodity exchange, the use of ICT in this business and channels used to disseminate market information, experiences of other countries in implementing commodity exchange & ICT utilization in this area and to identify appropriate research methods to carry out the study. (Oates, 2006; p. page 71-72)

Existing document analysis was conducted in the ECX offices to get a deeper understanding of problems of agricultural market in Ethiopia, market information needs of farmers, kind of information ECX provides to farmers, the use of ICT in the business, the infrastructure that support the system, IT solution roadmap and ICT channels used to disseminate information.

The primary data sources to answer the research question were Semi structured interview (Oates, 2006; p. 188) and open and closed ended questioner (Oates, 2006; p. 222). The questions were prepared based on the selected conceptual framework. The selections of the informants were based on purposive sampling (Oates, 2006; p. 98). I have interviewed and distributed the questionnaire to those whom I think that they will answer my question. For this study I interviewed four farmers who are users of ECX and literate. Thirty questioners were also distributed to farmers who are users of the system. See **Appendix I** of this paper for detail questions.

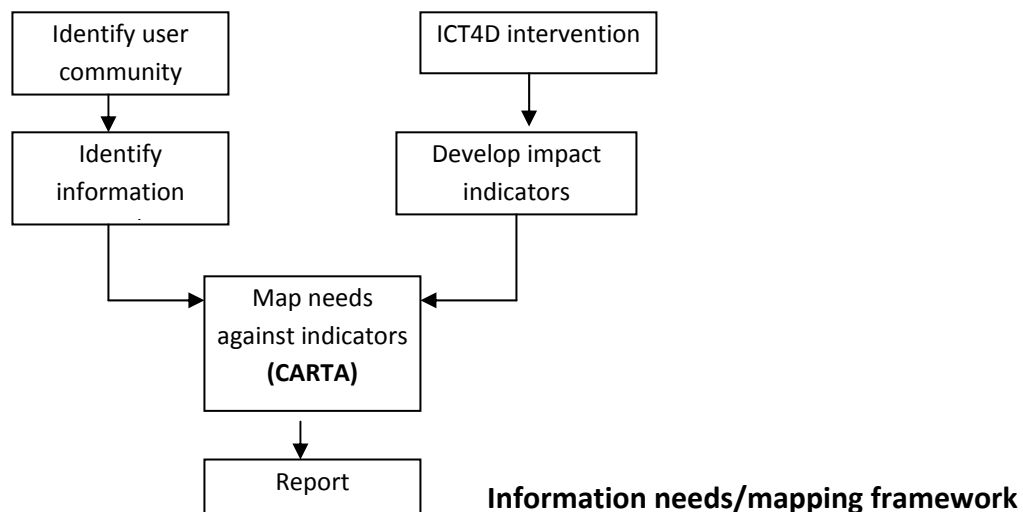
The interview captured by taking notes and using recording device (Oates 2006; p. 190). During data collection I have maintained the appropriate ethical considerations, like briefing about the aim of the study, keeping their privacy, reporting the exact response of the informants. (Oates 2006; p.

190). Interviews are conducted at Addis Ababa, Nazareth and Awassa with ECX employees and farmers. The aim of the Interviews was to get an understanding of the ECX system in general and to identify the information needs of farmers and track the impact of the information on the life of the farmers. The study was based on a small sample of 4 respondents. Many procedures are considered by the researcher to ensure the qualitative data validity and reliability such as purposive selection of interviewees. In addition to this each interviewee checks his/her interview transcripts to confirm its correctness.

I have distributed the questionnaire to 30 farmers who are currently using the ECX service for the past one and half year. This number of respondents from a country who has millions of farmers is too small and their impact on the study is also insignificant. But as compared to the number of farmers who are actively using the system I can say that they can have impact on the result.

Conceptual framework

This research relied upon the conceptual model of information mapping which was developed by Heeks & Alemayehu (Heeks & Alemayehu, 2009). This model is composed of five components which are Identify user community, Identify information needs, ICT4D intervention, develop impact indicators and map needs against indicators. This framework has the potential of measuring the effectiveness of information systems. It is useful to map information needs against impact indicators. It also allows farmers to determine their information needs and perceived impact indicators. Various researchers have used this framework to measure the impact of information systems. For example (Raihan , Hasan , Chowdhury and Uddin, 2005) used this framework to evaluate “peoples call centers” a project designed to serve the information needs of rural communities in Bangladesh. Mchombu (1995) also used this framework to assess the impact of information on rural development. The choice of this framework was due to the fact that it is strongly information based approach which is good for need identification and using that as an input for mapping against the impact indicators. Both the interview and the questionnaire are derived from this framework. I came up with the questions after reviewing and analyzing the above quoted literatures so as to make my study more transparent.



As shown in the diagram the model consists of five major components which are discussed below. The user community of the ECX system is composed of Farmers, exporters and other stakeholders like Banks and warehouse owners. Information needs of the users specifically of the farmers include market price of products, weather information, fertilizer information and bank information. The impact indicators (CARTA criteria's) will be mapped against the information needs of the farmers so as to know the effectiveness of the system as compared to the previous system. The Effectiveness of the system is measured by the extent to which farmers make use of the information delivered, and their satisfaction with the information delivered as compared to the previous system by the ICT4D intervention which is the new ECX system.

CARTA criteria's

Completeness: The completeness of the information means the degree to which all the data required by users is present in the e-government system. The completeness of the information is measured by asking farmers how much more complete information they get from current system (ECX) compared to the pre system situation.

Accuracy: The level of error/ incorrect data within the overall system data. The accuracy of the information is measured by questions like how much more error free or accurate the information they get from ECX compared to the pre-system situation.

Relevance: The degree to which data is necessary in order to complete particular user decision and actions. Relevance of the information produced is measured by comparing how much more relevant is the information produced by current system (ECX) compared to the pre-system situation?

Timeliness: The degree to which data can be delivered by the eGovernment system within a required timeframe, which is measured by the timeliness of the information produced by ECX by asking farmers how often they get updated market information from ECX compared to the pre-system situation.

Appropriateness of presentation: The degree to which data processed by the e-government system is accessible and intelligible to the users. Appropriateness of presentation is checked by asking questions that assess the accessibility and understandability of the information presentation by ECX compared to the pre-system situation?

Data analysis

The collected data will be analyzed in a quantitative and qualitative way using the selected framework. The qualitative data analysis will be performed by segmenting the collected data into three themes which are segments that has no relation to the research question, segments that provide general descriptive informational and segments that are relevant to the research question (Oates, 2006; p. 268-269). Segment that has no relation to research question will be excluded, General descriptive information's will be used to describe the study context and the relevant answers will be categorized and analyzed according to the conceptual framework to answer the main research question. The quantitative data analysis will be done first by encoding the responses of the survey into ms excel and assigning unique identification to each response and then tables, charts and descriptive statistics tools will be used as required.

Result

The results of the interview and questionnaire are presented in the next section.

Results from the Interview

Interviewee 1& 2: (ECX chief market data officer & ECX chief information technology officer)

Both management members of the ECX believe that there was no as such an agricultural trade system in Ethiopia before the establishment of ECX. There was some scattered system here and there without coordination at government level. For this reason small scale famers are not benefiting from these scattered systems. According to ECX chief marketing information officer:

"I can say that there is no agricultural system in Ethiopia before. It was an effort of some government and public corporations that exists, farmers are not getting the actual price that they should get"

Regarding the challenge they explained that there was a big challenge as there is no real time information about agricultural products. Farmers sell their product for middle men's that approaches them where this middle men's are taking the lion share of the profit. According to ECX chief information officer:

"Only city merchants are benefiting from the agriculture in Ethiopia before so this was the big challenge for us, that is to put this middle men's out of the market chain"

There are many reasons why Ethiopia needs commodity exchange. Apart from establishing a coordinated system that benefits small scale farmers there are many pushing factors from the international community also. According to ECX chief marketing information officer:

“We get funds from the international community to establish and run this system. Donors want the beneficiaries to be small scale farmers who suffer previously due to lack of market information”

ECX has now established a system where real time information is provided for farmers and other stakeholders. Farmers can get information about their product from Display board, Radio, TV and newspapers in their surroundings. ECX has a vision of making every farmer of the country to use ECX system. He pointed out that Farmers need information related to price , quality , quantity and other information's like whether , bank etc. According to them:

“ECX targets all Ethiopian farmers to be users of the ECX system in the near future, we have currently around 30 display boards around the country and have a plan of raising this number to 200 in the coming year”

“We have planned to start SMS and IVR in few months time so as to fulfill information requirement of farmers”

ECX does not currently fulfill all needs of farmers but working towards it. But it has great impact on the life of the farmers who are using the system since they are getting the real time information from the system, they cannot be cheated by middle men's as before and they are changing their life with the profit they get.

“You can easily see the changes in the life of the farmers after they start to use our system”

Both top management members of ECX believe that establishment of ECX has major impact in the agricultural marketing of the country. As the world is becoming small in this technological era small scale farmers who are far from cities should be connected to the local and international market at any time.

Interviewee 3 & 4 (farmers at Nazareth and Awassa)

The interviewed farmers are selected purposively. They are major users of the system which are known well in their region and the country also. They believe that before the establishment of ECX they have suffered a lot to get information about their products. They aggressively complain that others are benefiting for long time from their effort. According to one of the farmers:

“Yes, I am user of the ECX system since its establishment. It has helped me a lot in getting information whenever I need it.” “I get price, quality, quantity and other important information’s from the system”

Regarding the market place they use to sell their product before the establishment of ECX, the selected farmers said that they sell their product to the nearest market place to them. They get a price quoted by the merchants there as they don’t know the price at the far city or international market; they are forced to sell at any price they get. According to the farmer from Awassa:

“Our region is well known with its coffee produce in the world but we don’t know how much it costs in the international market and even in the local market, Thanks to ECX we are now selling directly to international market with good price”

The farmers complain that middle men’s are still trying to control the market. Because the level of understanding about the system of ECX by all farmers is too low this middle men’s are trying to get some benefit by setting their own price. The farmers said that:

“ECX has established a good system that helps us a lot but they have to reach and teach every farmer in small cities so that they will not be cheated by anyone”

Both farmers believe that they are not getting all the required information’s from the system. It is only information’s related to price and quality mostly they get. But they need information’s like whether, fertilizer, and other important information’s on the display board. Since this display boards are working with electricity they are not working during power interruption. According to one of the farmers:

“As you know there is a problem of power in the country in general these days due to this the display boards are not working frequently. ECX should think of some other system which is not dependent on other factors.”

Both farmers accepted the fact that ECX has great impact on their life even if the information it provide is not complete and timely due the fact that the system is dependent on other factors like power and telecommunication.

Results from the Questionnaires

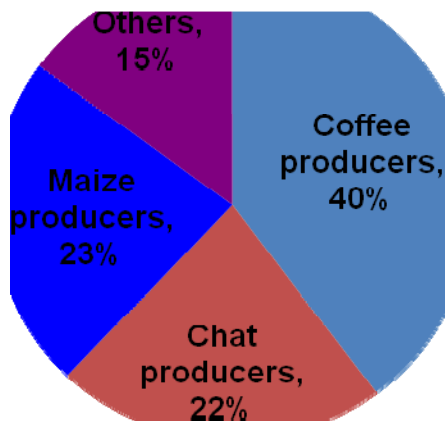
Out of the 30 questionnaires that are distributed I received 27 responses making a response rate of 90 % (n=27). The results given below are based on these returned questionnaires. In fact it is clearly known that if the response rate is 100 % the result would be somewhat different.

Table 1: Questionnaire Response

	N	%
Total number of questionnaire distributed	30	100
Returned questionnaires	27	90

Demography of respondents

The questionnaire was distributed to producers of different products like coffee, maize, chat and other products. The figure below shows that 40% of the respondents are coffee producers, 23 % are Maize producers, Chat producers comprised 22% and 15% were producers of other



products.

Figure 1 Demography of respondents (n=27)

Questions relating to completeness

Majority of the farmers (46%) responded that the information provided by ECX contains all the information they need and 31 % responded that it does not contain all the information they need. The median value for this variable was 2(Q1 0 does not contain, Q3 3 contains, n=27).

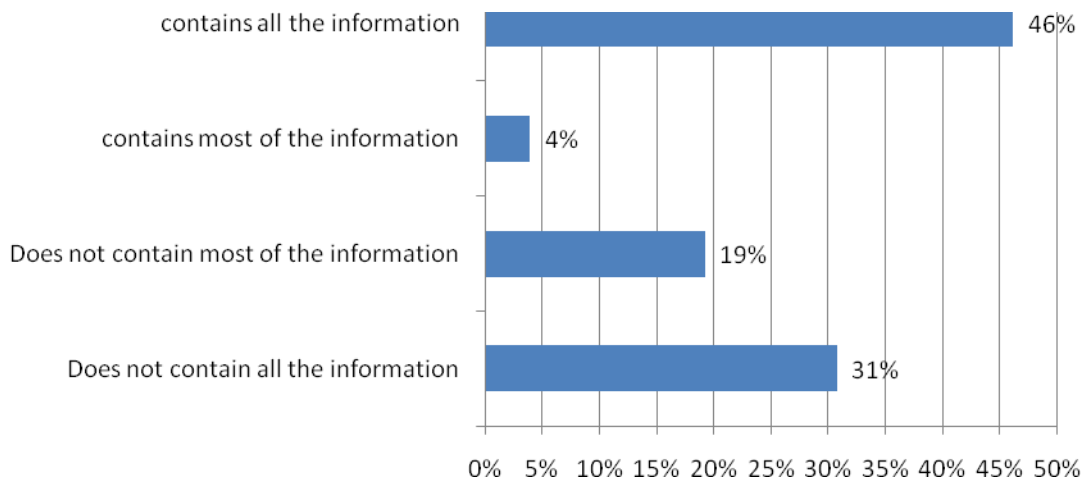


Figure 2: Completeness of information

Questions relating to Accuracy

The result of the survey indicate that the market information that farmers get from ECX is error free , since 70% of farmers believe that it is error free and only 30 % believe that it contains some error while no one responded that it is full of error. The median value of accuracy was 2(Q1 1 contains some error, Q3 2 error free, n=27).

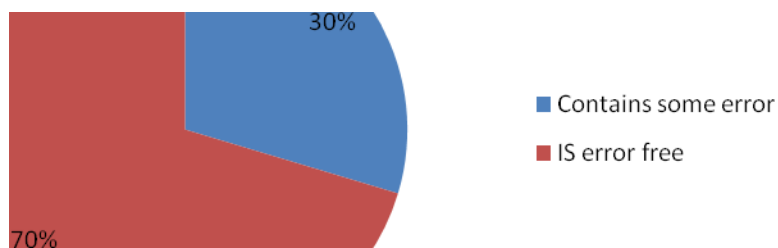


Figure 3: Accuracy of information

Questions relating to Relevance

The survey result indicates that the information provided by ECX is relevant. 67 % responded very relevant, 19 % responded rather relevant and 14 % responded little relevant. The median value of relevance was 3 (Q1 2 rather relevant, Q3 3 very relevant, n=27).

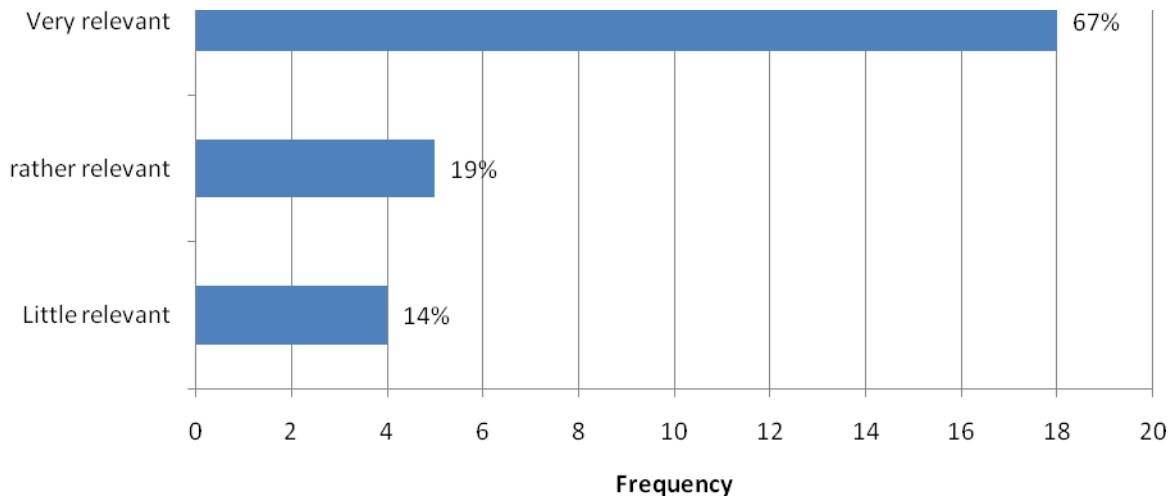


Figure 4 Relevancy of information to farmers (n=27)

Questions relating to Timeliness

The result of the survey shows that the information is provided timely (81 % strongly agree) while only 4 % does not agree. The median value was 4 (Q1 4 Strongly agree, Q3 4 Strongly agree, n=27).

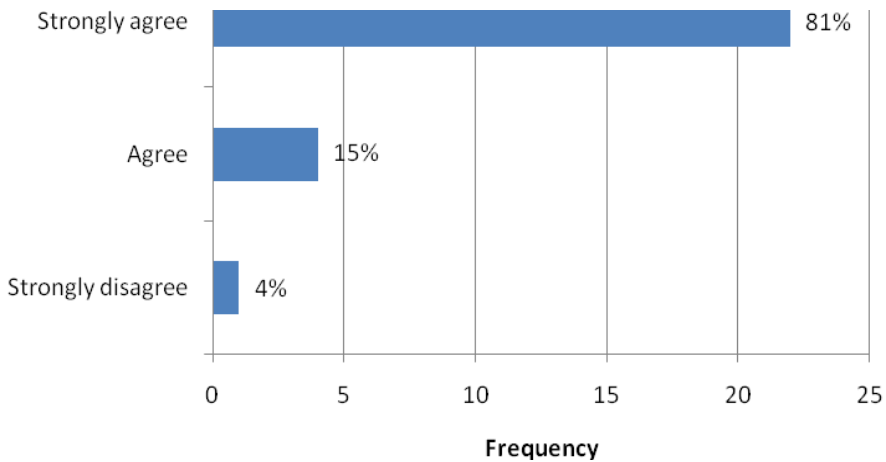


Figure 5: Timeliness of market information (n=27)

Questions relating to Appropriateness of presentation

A review of the results shows that Radio is the most convenient ICT tool to access market information, where 74% responded that radio is convenient for them while 19 % said display board and 7 % said that TV is convenient for them.

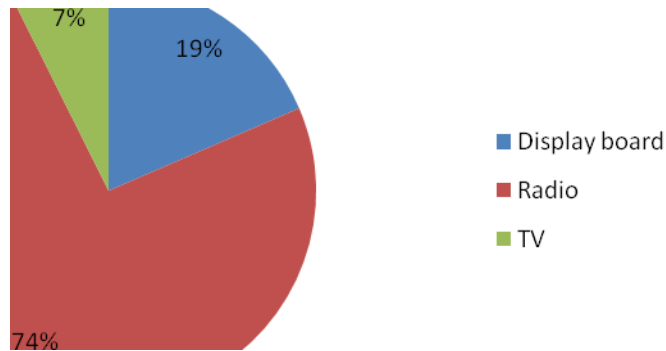


Figure 6: Convenience of ICT tool

As per the figure below 89% of the respondents agree that the information displayed was easy to understand .The median value for this variable was 1(Q1 1 easy to understand Q3 1 easy to understand, n=24).

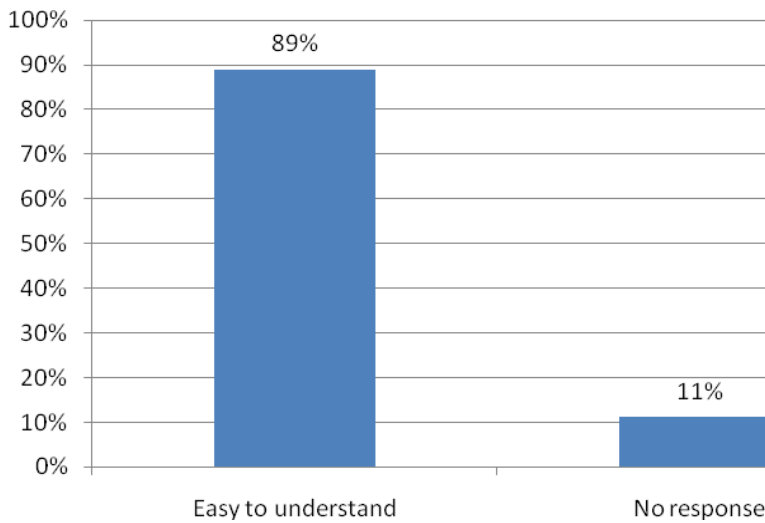


Figure 7: Understandability of information displayed (n=24)

As per the respondents the language used to disseminate the information was not in their own language, since 81% responded no. The median value of language used was 1 (Q1 1 no, Q3 1 no, n=27).

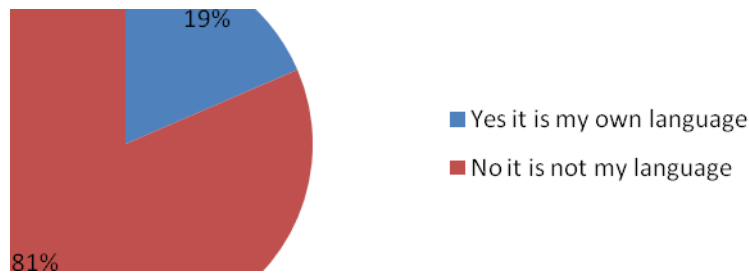


Figure 8 : Language used for data dissemination (n=27)

Regarding the accessibility of the information most of the farmers (56%) believe that it is easily accessible while 22 % said it is somehow accessible and 15 % said that it is not accessible.

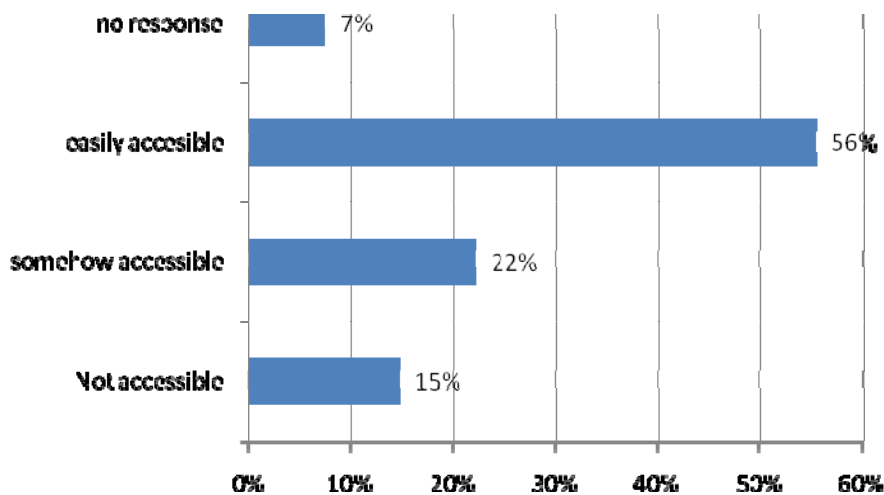


Figure 9: Accessibility of information (n=25)

Respondents are also asked with an open ended question to find out the impact of the system on their life, as per the figure below the most frequent responses were Getting real time information, fair price and no impact respectively.

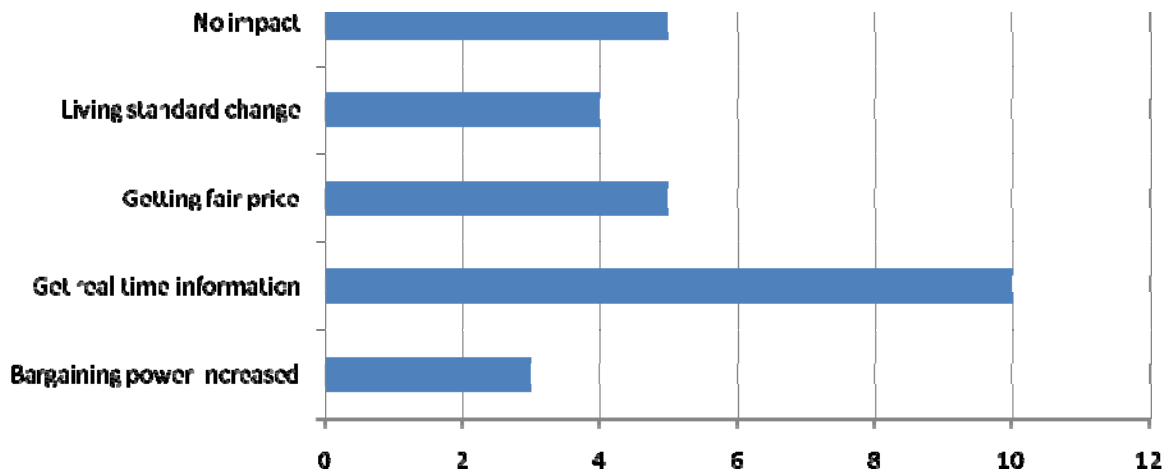


Figure 10: Impact of market information on the life of farmers (n=27)

Discussion

Lack of infrastructure; Accessibility problem; Lack of appropriate technology and Illiteracy problem were shown to be the most important factors to influence the effectiveness of the ECX system. The analysis implies that infrastructures like electricity and Telecommunication are important factors for the effectiveness of the system. Thus the government should increase its efforts to find a solution for the interruption of the information dissemination and in the mean time ECX needs to develop a new system which is not dependent on these infrastructures.

The findings also suggest that the technologies used to disseminate the information have direct relation with the effectiveness. Thus appropriate technologies like, SMS and IVR, in addition to the ones in use should be applied so as to make the information more accessible by farmers. The finding also shows that the languages used by the system are only the majority languages. As the country is composed of many languages the system at least should accommodate some of them which are common in the main producing regions so as to make it more accessible.

Limitations of the study

The major limitation of this study is that the information needs/mapping approach I use to analyze the data stops at the point of information delivery, without going on to look at the impact of that information. In order to know the impact an impact assessment model might be used but due to time limit and scope of the study I couldn't accommodate this. The other limitation of the study is that the sample size is too small and it is difficult to generalize from this small size group. In addition to this the characteristics of locations that are selected to interview farmers and distribute questionnaires might not be suitable for all other locations.

Conclusion

In summary, improving completeness, accuracy, relevance, timeliness and appropriateness of presentation are essential factors to increase the effectiveness of the ECX system. Improving the quality of the information with regard to completeness, relevance, timely and appropriateness of presentation will not only increase the effectiveness of the system but also lead the beneficial farmers to adopt a better life.

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Appendix I: Interview and Questioner

Interview questions to Chief Market information officer

1. Can you tell us about the agricultural trade system in Ethiopia in general?
2. What was the previous marketing system; before the establishment of ECX?
3. What are the challenges of the previous system?
4. Why Ethiopia need a commodity exchange?
5. What is like the ECX market solution looks like?
6. What is the vision of Ethiopian commodity exchange?
7. What are the market information needs of farmers in Ethiopia?
8. Do you think that ECX has fully met the requirements of Ethiopian farmers and other stakeholders?
9. What impacts do you think ECX has brought to the agriculture sector in general and to the lives of Ethiopian farmers in particular?

Interview questions to chief Information technology officer

1. Can you tell us the IT solution road map used by ECX?

2. What Information Communication Technology tools used to implement the system?
3. What ICT tools are used to disseminate market data?

Interview questions to farmers

1. Do you use ECX service to sell your product?
2. What do you know about the service of ECX?
3. What market information are you getting from ECX?
4. Where do you sell your product before ECX?
5. Is there any discrepancy between the actual market and ECX market information?
6. What kind of market information you need from ECX?
7. Do you get all market information requirements from ECX?
8. Do you get timely information from ECX?
9. Do you get accurate information from ECX?
10. Do you get relevant information from ECX?
11. Does the system have brought any impact on your life?

Questioner

Thank you for your willingness to participate in this study. The purpose of this study to describe the Ethiopian commodity exchange (ECX) market information system, particularly the effectiveness of the system in connecting the farmers to the market. Your answers are confidential and it is only used for writing a paper in partial fulfillment of a master thesis.

Completeness

1. The market information I get from ECX;
(0) Does not contain all the information I need
(1) Does not contain most of the information I need
(2) Contains most of the information I need
(3) contains all the information I need
2. The market information I get form ECX contains all the information I need to sell my products?
(0)Strongly disagree (1) Disagree (2) Neither agrees nor disagrees (3) Agree (4) Strongly Agree

Accuracy

3. The market information I get from ECX is
(0) full of error (1) contains some error (2) is error free

Relevant

4. How relevant is for you the information you get from ECX to sell your product?
(0) Not relevant (1) little relevant (2) Rather relevant (3) Very relevant

Timeliness

5. I get market information whenever I need it?
(0) Strongly disagree (1) Disagree (2) Neither agrees nor disagrees (3) Agree (4) Strongly Agree

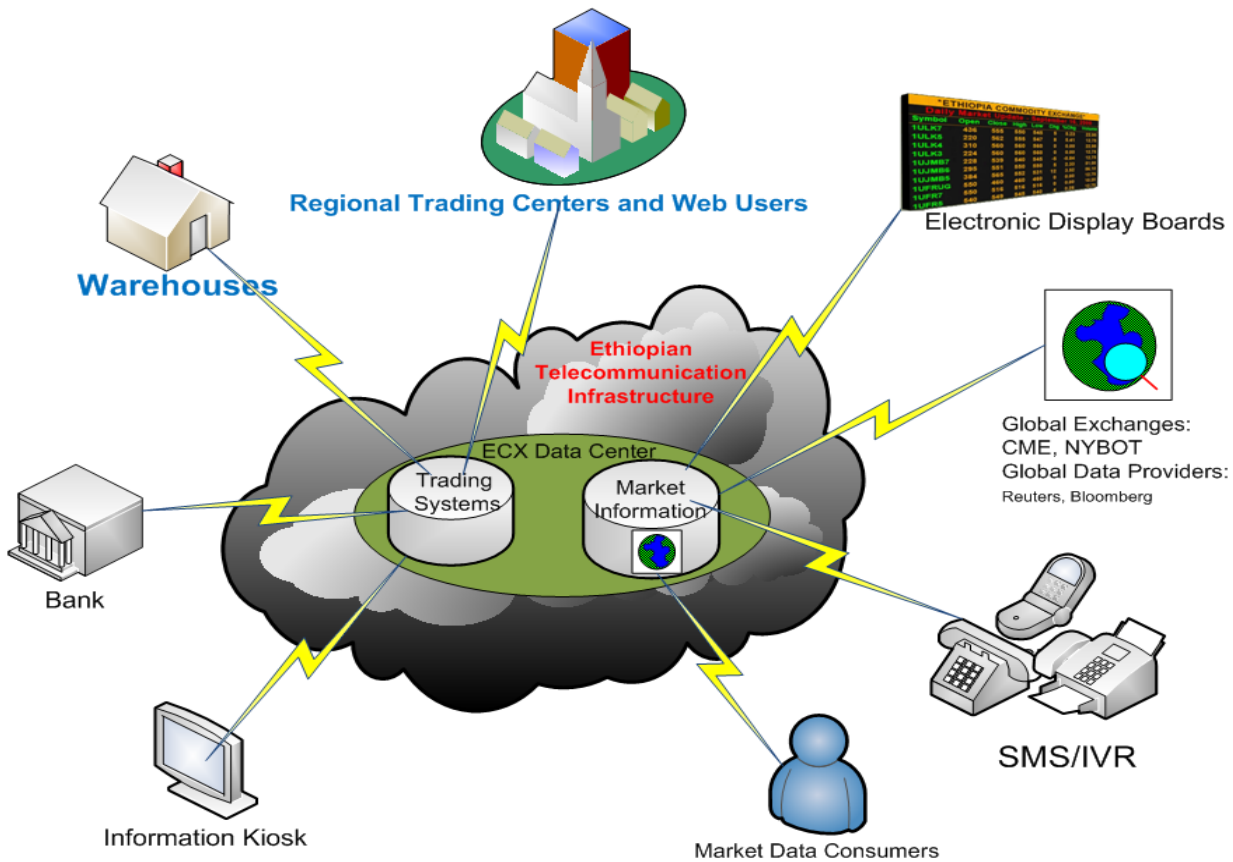
Appropriateness of presentation

6. Which Information communication technology tool is convenient to you to access market information, why?
(0) Electronic display boards (1) Radio (2) TV
7. The information displayed on the different data dissemination tool is;
(0) difficult to understand (1) Easy to understand
8. The language used to disseminate the market information is my local language?
(0) Yes (1) No
9. How accessible the market information you get from ECX
(0) not accessible (1) somehow accessible (2) Easily Accessible
10. What impact does ECX brought to your life in general?

Appendix II: How ECX works

ECX guarantees all commodity market actors the security they need in the market through providing a secure and reliable End-to-End computerized system for handling, grading, and storing commodities, matching offers and bids for commodity transactions, and a risk-free payment and goods delivery system to settle transactions. ECX creates trust and transparency through aggressive market data dissemination to all market actors, through clearly defined rules of trading, warehousing, payments and delivery and business conduct, and through an internal dispute settlement mechanism.

The application consists of trading and market information electronic database developed on SQL server and centrally located at ECX head offices which are electronically connected to all warehouses, bank, global exchanges ,CME (Chicago Mercantile Exchange) , NYBOT (New York board of trade) global data providers and electronic display board. This system is implemented under the Ethiopian telecommunication infrastructure broadband internet access, telecom network, dial up, wireless broad band and fixed line telephone.



IT solution roadmap of ECX

Trading system

The trading system database consists of data which are related to bank and warehouse. The aim of the trading system is to automate the end to end system from warehousing to trading to clearing and settlement of payments to delivery of commodity.

- Warehouse

ECX offers an integrated warehouse system from the receipt of commodities to the ultimate delivery. In these warehouses commodities are sampled, weighed and graded. After registering on the warehouse system, which automatically updates on the trading system database, an Electronic Goods Received Note and certificate, is issued for the goods received showing the quantity, grade, date received and specific area where the product comes. This receipt represents legal title to the deposited commodity which is transferable and negotiable.

The Exchange Central Depository provides the following services:

- Create Electronic Warehouse Receipts;
 - Maintain and edit required electronic warehouse receipt data;
 - Maintain a register of Depositors;
 - Effect settlement of contracts traded on the Exchange by transferring Electronic Warehouse Receipts between holders;
 - Issue Delivery Notices after transfer of Electronic Warehouse Receipt;
 - Void or cancel Electronic Warehouse Receipts;
 - Reconcile records daily
- Electronic banking

ECX has agreement with seven government and private banks. Before buyer comes to the trading floor he/she deposits funds into settlement account in Exchange partner bank. These banks have dedicated ECX settlement team in their Head Office where the branch that ECX account is maintained has to be in a networked branch. ECX gives assurance for the payment transactions in coordination with the banks.

- Clearing and settlement

ECX's zero default, fast and efficient Clearing and Settlement department assumes Central Counter Party (CCP) risk for all members trades. It establishes the net obligations of each member, informs the members of their daily net obligations and transfers cash funds and commodity ownership among members.

Market information system

The market information system consists of different dissemination channels like website, electronic display board, whole media (TV, radio, print media, market bulletins, and commodity outlook reports), and information centers to empower small holder farmers. The latest market information's are disseminated through this Medias:

- Website (www.ecx.com.et)

The ECX website (www.ecx.com.et) provides real time market data on all commodities traded. It also provides historical data, research, news, graphs, contract specifications and other key information.

- Electronic Tickers

Market information consisting of date, time, grade, price and volume of the items which are traded on the trading floor transmitted through the electronic display boards (which are seen as the flagship of the company). These electronic boards are currently located in 30 different locations across the country. The information transmitted in these boards is real

time (under 4 second) prices of all commodities traded on the platform. Since coffee is one of the most exported product of the country the real time New York price of coffee is also displayed on the board.

- Mass media (radio, TV, print)

Radio and TV is the most widely used communication channel in the country. ECX disseminate its market information through these channels in three commonly spoken local languages and in English. The three radio channels including the national radio transmitted the information four times a day and the national television channel three times.

- Bulletins – Market Commentary

ECX provides a summary of price comparisons with local and international prices; analysis and market developments via its weekly market bulletin. The analysis includes graphs, commentary and research on international markets and commodities traded on its platform.

- Information Center: ECX info center provides a variety of market information such as, daily domestic and international prices, market trends, production and weather forecast, market related news and events, etc.

The other Medias which are planned to be applied in the near future are:

- Mobile Phone Short Messaging Service (SMS) and Interactive Voice Response (IVR) service.

Appendix III: Data matrix

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Farmer ID	Completeness 1	Completeness 2	Accuracy	Relevance	Timeliness	Convenience	Understandability	language	Accessible	Impact
1	0	2	2	3	4	3		0	2	Bargaining power increased
2	0	3	1	1	3	2	1	1	1	Getting fair price
3	1	2	1	3	4	0	1	1	2	Get real time information
4	1	4	2	3	4	2	1	1	1	Get real time information
5	3	3	2	3	4	0	1	1	1	Bargaining power increased
6	0	4	2	1	0	2	1	0	2	No impact
7	1	3	2	3	4	2		1	2	Bargaining power increased
8	3	4	2	3	3	2	1	1	2	Get real time information
9	0	4	1	3	4	3	1	1		Get real time information
10	3	2	2	2	4	2	1	1	2	Get real time information
11	0	4	2	3	4	0	1	1	2	Getting fair price
12	3	4	2	3	3	0	1	1	1	No impact
13	0	4	2	3	3	2		1	1	Living standard change
14	3	4	1	2	4	2	1	0	2	Get real time information
15	0	4	1	2	4	2	1	0	2	Get real time information
16	2	4	2	3	4	2	1	1	2	Getting fair price
17	3	4	2	3	4	2	1	1	2	No impact
18	0	3	2	3	4	2	1	1	2	Getting fair price
19	3	3	2	3	4	0	1	1	0	Getting fair price
20	1	4	2	3	4	2	1	1	1	Get real time information
21	3	4	1	3	4	2	1	1	2	Living standard change
22	3	4	2	1	4	2	1	1	0	No impact
23	3	4	2	2	4	2	1	1	2	Living standard change
24	3	4	2	3	4	2	1	0	2	Get real time information
25	3	4	2	1	4	2	1	1	0	No impact
26	1	4	1	3	4	2	1	1	0	Get real time information
27	2	4	1	2	4	2	1	1		Living standard change

Count	27	27	27	27	27	27	24	27	25
Median	2	4	2	3	4	2	1	1	2

Quartile1	0	3	1	2	4	2	1	1	1
Quartile3	3	4	2	3	4	2	1	1	2