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**E-Government Implementation in Public
Service Organizations of Developing
Economies**

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Abstract

Purpose: The purpose of this research is to implement and test an E-government solution as an intervention mechanism to the challenges of good governance practices in Ethiopian public service organizations. E-government has the ability to transform relationships of public sector organizations with employees, customers and other important stakeholders. It serves a variety of different ends for public sector organizations such as better deliver of service to customers, improving organizational governance to enhance transparency and accountability, improving organizational communication and interaction with stakeholders, empowering employees and management through providing access to organizational information. Hence, E-government has become important component for public sector organizations in enhancing transparency and accountability. Knowledge on E-government has been presented in known outlets, however there is no sufficient research done to see how it can bring behavioral changes specifically enhancing transparency and accountability in the context of developing economies.

Methodology: We followed action research methodology to implement the E-government system and qualitative data has been collected through interview, focus group discussion, and workshop for the purpose of diagnosing the challenges of good governance and for evaluating the E-government system. The five-staged action research methodology proposed by Baskerville (1999) has been followed as intervention mechanism in the organizations and further improve the system based on results of E government system evaluation.

Results: The evaluation and learning stages showed that the implemented E-government system at the selected three public service organizations has improved the situation. Organizational effectiveness, internal transparency and accountability, collaboration and public participation were improved significantly in those bureaus as a result of the E-government system implemented.

Conclusions: We conclude that transparency and accountability on the selected public sector organization were very much improved because of the implemented E-government system. As this project has addressed accountability and responsibility at least to some extent, other organizations that are the same situation and in the same context can benefit from it. The implemented E-government system introduced can offer better results if the first version can be enhanced to a fully-fledged system provided that all the necessary resources such as manpower, financial, and material resources are in place.

Key words: *Action research, E-government, ICT and good governance, ICT in public sector organizations, E-government systems and governance.*

Introduction

One of the purposes of E-government is to improve communication and flow of information from government to citizens and vice versa (Res *et al.*, 2011). E-government technologies have established useful instruments in enabling governments to improve quality of service delivery and testimony to the public. Many governments adopted information communication technologies (ICT) and improved service efficient to citizens (Sobhi et al, 2009). It uses Information Communication Technology ICT to improve public activities in bringing greater organizational efficiency and effectiveness. Vertical and horizontal Integration of Government Agencies and departments were enhanced through E-government implementation (Atkinson and Castro, 2008). Many countries have introduced E-government programs to bring openness, improve interactions, improve reach-ability of public services, enhance responsiveness, comply with laws and regulations, improve control on officials, reduce corruption, increase transparency, and improved accountability (Kim *et al.*, 2009). Because of its numerous advantages, many government organizations in the world have adopted and implemented E-government systems to improve accountability, transparency and service quality to fight corruption. Developed countries specially have extensively developed their E-government systems to provide services for their people (Rugchatjaroen, 2015). To gain above advantages; E-government projects are also consider as useful systems and hence implemented in public sector organizations of developing countries.

To realize E-government benefits, many E-government projects have been implemented in different organizations both in developed and developing country. The Ethiopian government has also implemented e-service and E-administration project as a key component of the broad E-government strategy (Getahu, 2006). However, these E-government systems were not designed and implemented in a way to put good governance in place from side to side enhancing transparency and accountability in Ethiopian public sector organizations in general and public service organizations in particular. Multiple factors are attributed to good governance problems especially in developing economies. In Ethiopia, lack of good governance norms, low level of institutional control, and centralization of authorities are the main factors leading to corruption (Pathak *et al.*, 2007). The good governance report (Afar Regional State Civil Service Bureau, 2013/2014) from the regional office also supports this. The report indicated that budget utilization, low performance implementation of annual plan, customer and employee dissatisfaction, employee turnover, poor service quality, negligence of customer service, discouraged employees in management decision and behavior, increased unsatisfied customer services are persistent in the bureaus. We believe that these problems can be improved via implementing an E-government system with an objective to enhance public sector organizational transparency and accountability.

Though the problems are persistent and common in most of the public service institutions of the regional state offices, systematic investigations to discover possible opportunities that might help the bureaus to enhance good governance norms, especially the potentials of ICT were not tried.

So finding a mechanism to enhance transparency and accountability in those regional bureaus will move the solution a step forward. Hence, the purpose of this research is to design, implement, and test an E-government system to improve accountability and transparency of staff, management, and customers. Accordingly, to meet its objective this research addresses the following interrelated research questions: How should E-government system designed and implemented in Ethiopian public sector organizations? How can enhanced transparency and accountability in the selected bureaus?

Background

Afar Regional State Civil Service Bureau is one of the public sector organizations found in Samara Logia city administration in Afar region, Ethiopia. Samara-Logia town is located at latitude of 11⁰47'N and longitude 41⁰ 00'E at a road distance of 580 km from Addis Ababa to Samara. The town lies along the main road linking Addis Ababa with the port of Djibouti. The study area, Afar Regional State Civil Service Bureau is located at 583 km far from the capital city of Ethiopia, Addis Ababa. Currently, the total employees of Afar Regional State Civil Service Bureau are 109 and the customers of the bureau are regional organizations, civil servant, private company, civil society, and community. One of the authors in this researcher team is also a member of this bureau.

The good governance survey of Ethiopian government official report (Afar Regional State Civil Service Bureau, 2013/2014) mentioned governance problem as one of the challenging and persistent situation in public sector organization in federal and local government. Afar Regional State Civil Service Bureau is one of the public sector organizations delegated to mobilize good governance improvement in the region. Almost in every fiscal/budget year, the bureau is trying to fight good governance problems to improve transparency and accountability. Reports (Afar Regional State Civil Service Bureau, 2013/2014) from the bureau indicate lack of transparency, accountability, and rent seeking as major problem. Moreover, budget utilization, lack of strategic plan implementation strategies, low performance in implementation of the annual plan, customer and employee dissatisfaction, employee turnover, poor service quality, negligence of customer service, discouraged employees in management decision and behavior, increased unsatisfied customer are the prevailing problems in the bureau. However, systematic investigations were not tried to discover possible opportunities that might help the bureau to achieve its mission. Therefore, finding the causes of good governance problems and resolving mechanisms to enhance transparency and accountability in this regional bureau is one-step forward solution. E-government solutions used as an intervention mechanism to increase feelings of accountability and transparency over staff, manager, and customer to bring behavioral changes related to governance problems.

To intervene the problem situation in Afar Regional State Civil Service Bureau, we followed a five-stage action research (Baskerville, 1999) methodology. Action research requires one to be a part of the research as participant researcher. One of the members of this research team is a senior software developer in the bureau and closely knows the problem situation. This researcher has continuous interaction with software development team, management, and employees in Afar Regional State Civil Service Bureau as he is a member. The top management team of the bureau and head of the ICT development team have also voluntarily assisted the researcher in accessing resources and facilitated the implementation of the system providing the logistics and

other necessary resources. The action research applied as framework and overall methodology. The phases of the action research and how we applied it in our context is discussed in the methodology section.

Once the first step of action research, problem diagnosis, is done the researchers prepared design principles and requirement analysis document (RAD). The RAD document has both functional and non-functional requirements of the system included. We used incremental model for system analysis and design method in the system development life cycle where we progressively designed and implemented the system first in one of the bureaus and then follows to the other two. Unified Modeling Language (UML) is the approach applied in this action research to initiate communicates with top management and staff initially. Then we mapped the requirements of the E-government system to a design solution implemented as a web application. The E-government web application is implemented on client/server architecture. The client-side was implemented using HTML5 (Hypertext Markup Language) and JavaScript while the server-side was implemented with Hypertext Preprocessor (PHP) and the backend database was MYSQL with Apache web server.

Related literature

E-government is also defined as having a sense of digital interactions between a government and people. Generally, it refers to the utilization of ICTs, and other web-based communication technologies improve and develop the efficiency and effectiveness of service delivery in the public sector (Harris, 2000). It employs different models of implementation. The basic models are government to citizen, government to employees, government to government and government to business (Rossel & Finger, 2007). It enables people to visit state websites to communicate and interact with employees through the internet, instant messaging, email and audio or video presentations (Kaylor et al., 2001).

E-Government can help alleviate corruption in nations by reducing the existing information asymmetries (Srivastava *et al.*, 2007). A common argument in most literature dealing with E-government in developing countries is the focus on transparency and fighting with corruption.

E-public supports interaction between citizens and the government for better public decision making (Nnanyelugo & Honglei, 2015). E-government assist citizens in completing their transactional goals, service delivery defines the manner by which these functions are made accessible via the web interface as a delivery channel (Chee *et al.*, 2013).

An electronic-procurement system becomes important for governments to make their procurement procedures more efficient, effective, and transparent in order to decrease cost, corruption, and abuse of public resource, particularly in developing countries (DongBack. & Gumala, 2011).E-government and E-service implementation are critically important for developing countries (Owei *et al.*, 2006). However, there is lack of implementation studies related to enhancing accountability and transparency.

Overview of E-government in Ethiopia

The Ethiopian Ministry of Communication and Information Technology (MCIT) has a mission to develop, deploy and use ICT to improve the livelihood of Ethiopians and optimize its contribution for the development of the country. MCIT realizes the need to integrate these

initiatives to provide a strategic direction for E-Government implementation in the country. It is in this context that the E-Government strategy for Ethiopia has been designed, with a focus on facilitating effective delivery of government services to customers, residents, businesses and visitors. The strategy envisages implementation of 219 e-services comprising of seventy seven (77) informational and one hundred thirty four (134) transactional services over the last five years period (Alehegne, 2014).

According to the E-Government Development Index (EGDI, 2014) survey the E-government performance of Ethiopia is (between 0.25 and 0.50) which is a middle-level EGDI point. In terms of Online Service Index (OSI), which is one of the most important components of the EGDI, Ethiopia received 0.4567 and was ranked 72nd among 183 nations around the world. In both cases, the numbers are signaling the presence of much work to be done. Common E-government application initiatives like E-Procurement, the ministry proposes Human resource Management System, E-Office, E-Mail and Financial management information system across all ministries.

The E-Government strategy in Ethiopia has a customer-centric focus so as to facilitate the delivery of services and information flow conveniently to citizens. E-government enhances the access and delivery of any facet of government services and operations to the benefit of citizens, businesses, and other stakeholders (Srivasta *et al.*, 2010). Therefore, these capabilities need to be added to the Ethiopian E-government strategies and initiatives.

Research Methodology

Intervention has been introduced to the prevailing problem following Action design research (Baskerville, 1999). The researchers approached the observable good governance problems through the five-phased action design research: problem diagnosis, action planning, action taking, evaluation, and learning (Baskerville, 1999). Different activities were done in each of the phases as presented in the next sections.

The diagnosis phase is meant for understanding the problem and identifying the challenges (Baskerville, 1999) regarding good governance issues. The problems inherent to the bureaus have been identified in this phase as discussed in the introduction section and detailed below. To better understand the situation we have used both primary and secondary data. Interviews were conducted and various documents were referred. There was also focus group discussions conducted in a conference form with different stakeholders.

In the action planning stage the researchers planned to implement an E-government system to improve the good governance problems identified at the diagnosis stage. The software development methodologies to be used have also been selected at this phase. Incremental software development methodology and the Unified Modeling Language (UML) approach were used to develop the E-government system and to capture the system requirements and design of the system. We preferred a web based application for our E-government system implemented as client-server architecture. HTML5 and JS were used for client side scripting and PHP as a server side scripting languages, Apache as a web server, and MYSQL as a back end database.

In the action-taking phase the researchers designed the architecture of the system, develop the proposed E-government and implemented it in selected regional public sector bureaus. Initially

the E-government system was implemented having a feature of social networking where users will be identified based on their Ids and computer IP addresses. However during the first evaluation phase we learned that users want some of their identities and information to be hidden from the view of others. The E-government system was planned to function with the following features:

- Top management, middle level management, and staff can create their own accounts and make their accounts available for public comments and feedback.
- Top management can have access to all the feedbacks about the middle level manager, staff and customers, include his/her comments and appreciations, resolve contradictory and confusing issues by responding to feedbacks based on data analysis results produced in graphical forms and tangible information gathered;
- Middle level managers can access comments regarding him/her, possible to comment top manager and staff in a secured manner, and observe employee comments on his/her managed work process/unit/department.
- The staffs can access only his/her own commentary. But possible to comment top and middle level management page regarding them or the processes used to supervise them.
- The researchers believe customers should have total autonomy to supply feedbacks without any restrictions to any of the processes or civil servants as the services are particularly designed to them. Hence, customers have full access to comment the bureau's staffs and managers without registration, and also customers have a forum to participate in the process of designing and evaluating the plan of the bureaus. Customers will remain anonymous to the system so that they can feel free to provide feedback.

Finally, during the evaluation phase the E-government system was implemented and evaluated whether it actually enhanced transparency and accountability. The evaluation was mainly to assess the improvement of employee and customer satisfaction, enhancement of transparency, accountability and good governance on the bureaus and was managed with semi-structured interviews, focus group discussions as workshops and participant observation. Accordingly, lessons learned were generated and discussed for the purpose of further improvement of the system.

Intervention to the problem situation

In this section, we present how the problem situation was approached and how the intervention mechanism was operationalized following the five phases of action research methodology. We presented how we contextualized the action research phases and showed what we have done to arrive at our objectives.

Intervention: Diagnosis

The presence of good governance problem was clearly understood by top management and researchers, however for better understanding of the level and the next steps to be taken data collection is found to be an important step. Primary data was collected from managers, senior employees and customers in each department through interview, focus group discussion in a form of workshops. Since interview can be used to confirm information obtained from observation (Maxwell, 2005), the data from the interviews was used to compare what we

observed in the past four years in the bureau. A total of 165 participants were taken from three regional organization civil servant bureaus as a sample size for this study. Thus, during the workshop time 165 civil servants and 3 regional sector organizations were participated. In addition, 3 top management, 6 middle managers, and 12 experienced employees of the three bureaus were included in the interview during pre-diagnosis and post-evaluation diagnosis period.

From the empirical data collected through interview, we understand the existence of good governance problem in the selected public sector organization in the Afar region. Moreover, there are problems relating to how it is used for each quarter and term. Problems related to lack of accountable for decisions like budget allocation and utilization, resource allocation and utilization, fair distribution of resource, service quality and delivery were identified. Nobody is accountable and responsible for improper use of resources. These bureaus tried different mechanisms like training for managers and staffs on good governance topic and prepare organization rent seeking and citizen charter documents to fight rent seeking and establish good governance in the public sector. Still transparency and accountability are not enhanced in those public sector bureaus. Data collected from the customers showed that there is no transparency in service delivery; information accessibility and nobody is responsible for service faults and disobeyed activities in the bureaus. We thus believed that accountability transparency, and participation problems are at the heart of all these and finding solutions for these challenging obstacles will improve the others.

Intervention: Action planning

Guided by the working research questions, the researchers set out design principles that would improve transparency and accountability in the three bureaus. The following three principles (principle of transparency, principle of accountability, and principle of participation) were thus developed to help the development of a better solution.

The principle of transparency: E-government should make resource allocation and utilization, planning, management decision and all legal organizational information visible and accessible to the employee and managers. This principle responds to the problem of the three bureaus limiting the opportunities of internal transparency of the organizational activities.

The principle of accountability: E-government should control managers and employees misbehaved and illegal activities of the three bureaus. This principle addresses the problem of inaccurate use of resources and rent seeking.

The principle of participation: E-government should support employees, customers and managers to participate in plan designing and evaluation of the bureaus at any time and everywhere. This principle addresses the role of collaboration of employee, customer and manager of those bureaus for good governance improvement and effective achievement of the mission.

These three design principles were then applied in the design of E-government system in those bureaus to enhance transparency and accountability. Theoretical selection was motivated by management agency theory (Eisenhardt, 1989) stating that agency problems can arise because of inefficiencies and incomplete information. Agency relationships occur when principals hire agents to perform a service on behalf of them. The design of the E-government system thus need

to present transparency on resource utilization and allocation, planning, management decision and information; accountability for management and employee misbehaved and illegal activities; and participation on plan design and evaluation. Hence our E-government system design proposition would be:

Greater information transparency on resource utilization and allocation, planning design and evaluation, management decision and activities; greater accountability in management and employee activities and customer and stakeholder participation in public sector organizations through the use of E-government system will lead to greater accountability and transparency.

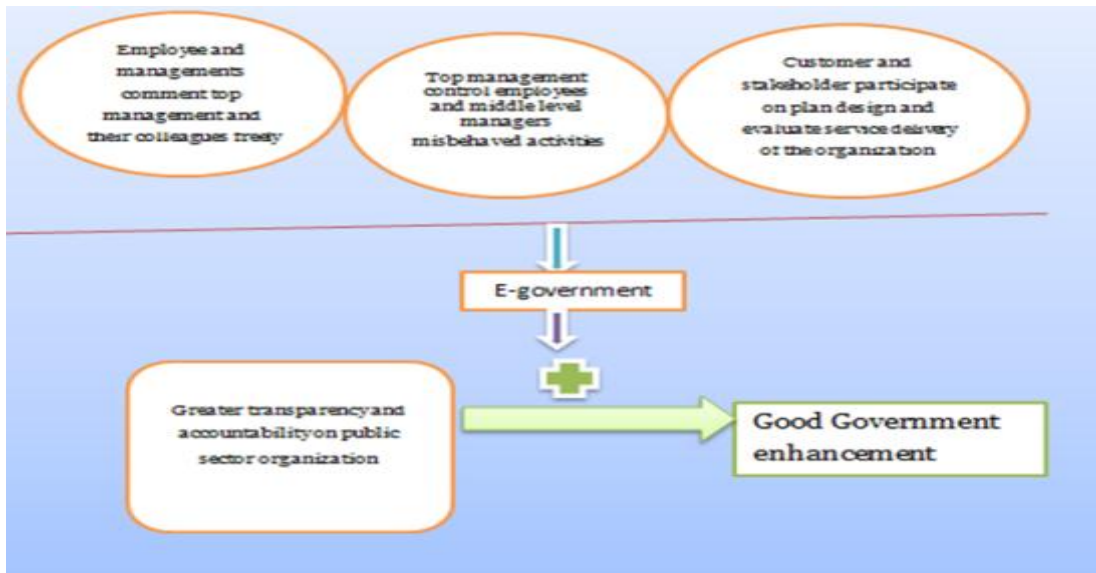


Figure 1: Intervention Approach

Intervention: Action taking

Action taking is the implementation of the planned action. Baskerville (1999) suggests taking action that can occur in a number of ways, including the implementation of E-government system as catalysts. In this phase the E-government system first version implementation was demonstrated to guide employees, middle level, top level managers, and customers given an opportunity to exercise transparent and accountable governance. The developed system embraced for the success of three of our design principles: transparency, accountability, and participation in the organization.

The In this section we need to define actors and then the use cases, before the use case diagram is to understand the application domain. Actors were identified and designated using a use case as follows:

Employee: A person who is responsible for bureau delegated job activities and create an account and make it available for public comment on the E-government system and also accesses the feedback information through this system. Employees are staff member of bureaus working in different job position.

Middle level manager: A person who is responsible for his/her delegated department or office administrative activities and can create their own account and access feedback report about his/her or the department. He/she might be a manager, a member of middle level managers in the bureau and delegated to the department or office administration

Top Manager: a person who is responsible for all bureaus' activities. Also creates and access his/her account to follow up all the organization activities. A top manager is a member of bureau managements and responsible for all organizational activities.

Customer: A person who wants to get service effectively and efficiently from the bureaus; participate on plan design and evaluation and give feedback to employees and management service and its activities. Refers to a person who has part in improving service and service quality.

Stakeholder: a person who has a role in the defined bureaus mission achievement. A stakeholder is a decision maker directly to the bureaus and has a role in its availability.

Staff information: The staff information is the address of the employee to be available for public comment on their service delivery to the customer and misbehaved activities of the three selected bureaus.

Management information: The Management information is the address of the manager to be available for public comment to their service delivery of the customer and employee besides that all activities of their administrative office or department.

Department Information: The department information is the address of the department to be available the service and plan for customer feedback and participation.

Organizational information: The organization information is the area of voting for employee, customer and stakeholder on good governance of the organization and service delivery. In addition to that customer and stakeholder participate in the area of paling design and evaluation.

Use case Diagram: The use case diagram seen in figure 2 gives an understanding of the interaction and the connection between the use cases and the actors.

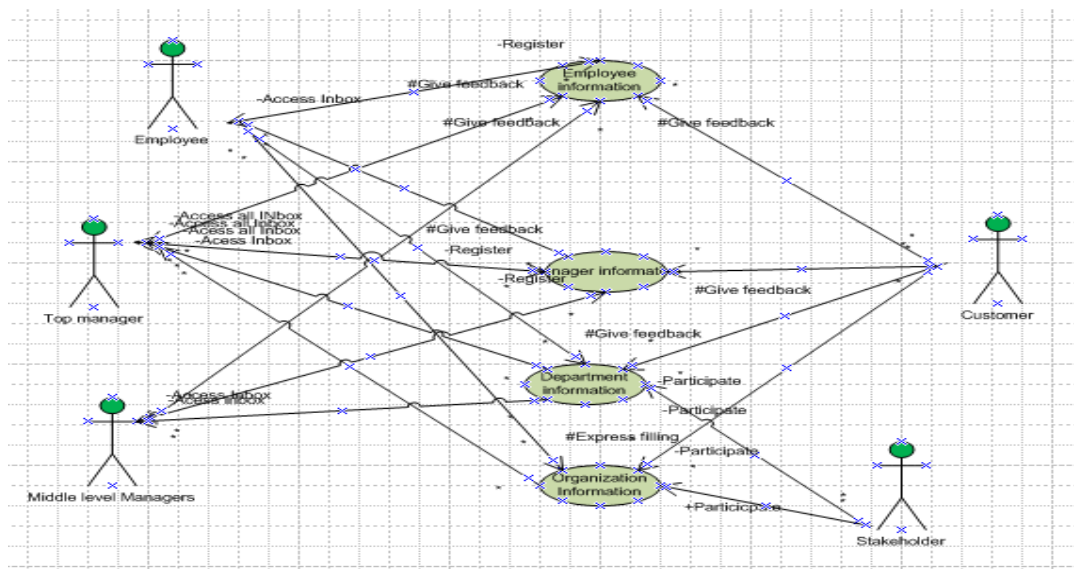


Figure 2: Use Case Diagram

The E-government system was implemented in the three Public Sector Organizations of Afar Regional State. The system was available on May 14, 2014 online and accessible for online users. One hundred sixty five (165) employees and all managers of the bureau used the first version of the E-government system while it was first introduced and there were many customers who use the online E-government system.

The implemented E-government system enables top management to access all management feedback report, all employee feedback report, employee and customer satisfaction and graphical analysis of dissatisfaction by one user name and password as shown in figure 3 (a). Besides, top management can monitor misbehaved and illegal activities of the middle level manager and employees in the organization. In addition the system support for top management and can uses in advance for decision making purpose, because the system shows in detail employee and customer satisfaction and dissatisfaction graphical analysis by each measuring area of transparency and accountability as described figure 3(b) and figure 4. The graph shows that material and financial transaction was the dissatisfaction area of the organization. Such graphical reports increase the top managements' understanding of the internal administration of the bureau. Employees and customers make a vote on the organization internal administration and service activities. So the pie chart (fig. 4) shows most of the employees and customers are not satisfied in material management, financial transaction and man power management.

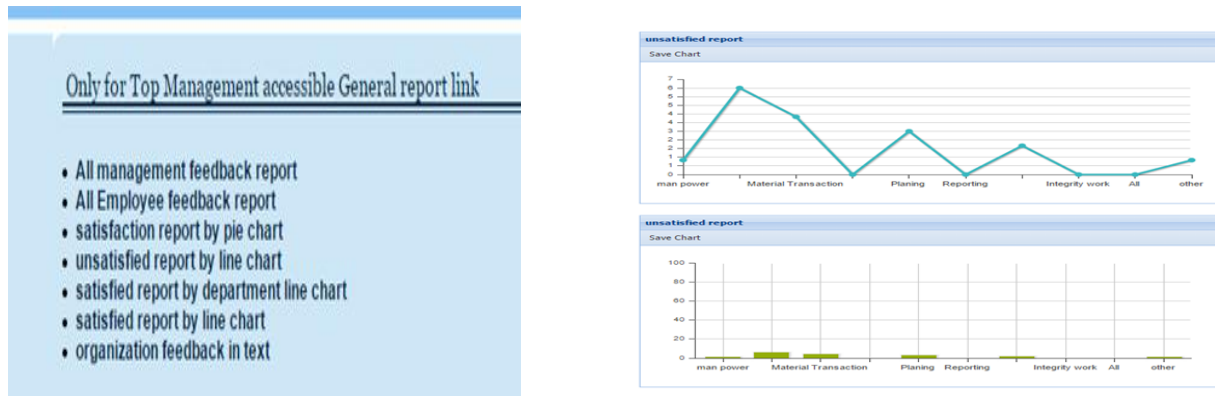


Figure 3(a) all top management accessible system reports Figure 3 (b) Graphical analysis of the system

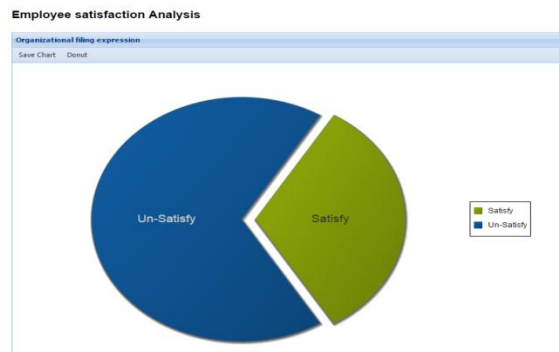
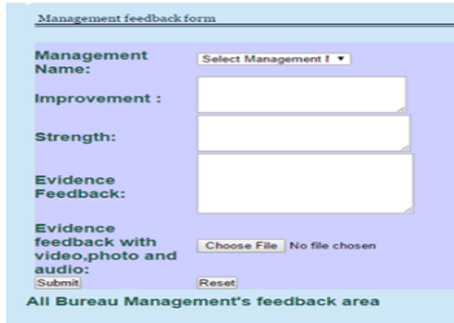


Figure 4: Satisfaction and Dissatisfaction analysis report in pie chart

The implemented system also supports middle level manager to create their account for the availability of public comment on the system and can access his/her feedback as indicated in figure 5 and figure 6. Also, it is possible to comment top manager and employee in securing manner, and observe employee comments on his/her managed department. Besides, the middle level manager can access department feedback report analysis.



Management feedback form

Management Name:

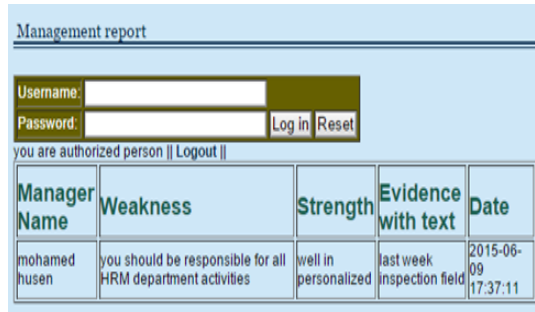
Improvement:

Strength:

Evidence Feedback:

Evidence feedback with video, photo and audio: No file chosen

All Bureau Management's feedback area



Management report

Username:

Password:

you are authorized person || Logout ||

Manager Name	Weakness	Strength	Evidence with text	Date
mohamed husen	you should be responsible for all HRM department activities	well in personalized	last week inspection field	2015-06-09 17:37:11

Figure 5: Middle level management comment form Figure 6: Middle level management system inbox form

The implemented system supports to employees to create their account for the availability of public comment on the system and can access his/her feedback as indicated in figure 7 and figure 8. Also, it is possible for employees to forward message and comment to top manager, middle level manager and colleagues without frustrate and time limit. Also the employee sets his/her vote on organization satisfaction and dissatisfaction area for organizational transparency and accountability improvement.



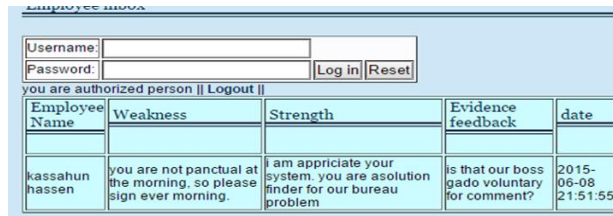
Employee comment form

Employee Name:

Put improvement area:

Strength:

Other:



Employee inbox

Username:

Password:

you are authorized person || Logout ||

Employee Name	Weakness	Strength	Evidence feedback	date
kassahun hassan	you are not punctual at the morning, so please sign ever morning.	i am appreciate your system. you are asolution finder for our bureau problem	is that our boss gado voluntary for comment?	2015-06-08 21:51:55

Figure 4: Employee feedback form Figure 5: Employee System inbox report

The system supports for customers and stakeholders to comment on employees and managers of the organization without registration. Also the E-government system can support for customers and stakeholders to participate directly in plan designing and evaluation of the bureaus as shown in figure 9. The system also supports for customers directly comment and vote the department based on service delivery category related.

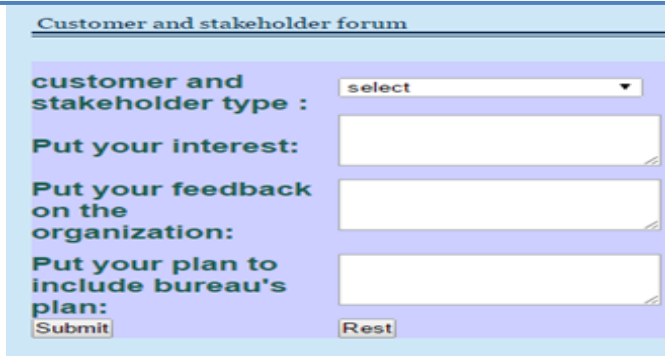


Figure 9: Customer and Stakeholder Participation form

Evaluation and Learning

Evaluation

Evaluation is necessary to test the utility of the E-government system implemented. Whether the design principles and objectives of the system are met or not will be ensured through testing the functionality of the system and analyzing the reactions and feedbacks of the users. It is also important to make changes and improvements during the next action research cycle based on the evaluation results for the purpose of enhancing the usability of the E-government system. This improvement is made based on the results from the learning stage of the action research cycle. Thus, the evaluation step examines whether the theorized effects were realized and whether these effects relieved the problem (Baskerville 1999). Soon it became clear that the early misbehaved activities of the managers and employees are controlled and all organization resource allocation and distribution information are transparent as expected. Due to the merger between the researcher and managers of the selected public sector bureaus, we relied on an approach that came as close as possible to an organization-based evaluation process. Our process consisted of system demonstrations, workshops, and interviews involving employees, managers and customers.

During first round of implementation the researchers presented the system to the bureau's employees and managers at each department office, whereas the customer's feedbacks were collected from the web based application. Furthermore, the researcher set up a test environment with transparency (organizational information access), accountability (manager and employee illegal activity control) and participation (customer and stakeholder on plan design and evaluation). Users were given guidance to use with the E-government system in a hands-on fashion. Over a series of sessions employees, middle level managers and top managers tried to be transparent and accountable in the first version. Afterward, the researcher interviewed them to elicit their response to the first version of E-government system.

Another evaluation strategy involved three workshops and held at three sites (Afar Regional State Civil Service bureau, Afar Regional State Education bureau and Afar Regional State pastoral and Agriculture bureau). There were forty three, sixty seven and fifty five participants' from Afar Regional State Civil Service bureau, Afar Regional State Education bureau and Afar Regional State Pastoral and Agriculture bureau respectively who attended the workshop. The participants were a mix of employees and managers. During the workshops the researchers

learned existence of improvements in organizational transparency and accountability, encouraged users to interact with the E-government system, and then conducted focus group discussion sessions in which users were encouraged to discuss their thoughts on and reactions to the first version of E-government system. . Afterward one top manager and two middle level managers with a total of nine managements and four employees from each three organizations with a total of twelve employees from participants were interviewed.

The evaluation from those bureaus revealed both expected and unexpected consequences of the first version of our E-government system implementation. Overall, the prospective users seemed to value the first version of the E-government system flexibility of the display of management and employee feedback area. For instance, the Afar Regional State Civil Service bureau plan manager remarked:

This E-government system is a real problem solver and confident to users. It is an appropriate system for public sector organization in regional states like Afar, where face to face communication is not a culture, and not developed well. But in terms of effectiveness it is not such appropriate because all customers and employees are not capable to use the system due to lack of technology skills and fear about the use of the system. I believe that this E-government system can create better conditions for organizational transparency and accountability also it speeds up the working process.

Besides, information regarding last quarter (2014) plan report and (2015) proposed plan were posted in the bureaus' website, the customers forwarded their feedback and plan through the E-government system. Consequently, the implemented E-government system increase collaboration of Afar Regional State Civil Service bureau's customers and stakeholders.

Afar Regional State Civil Service bureau plan manager highlighted that; the system has allowed customers and stakeholders to pronounce their plan and evaluation in more comprehensive ways. They were able to express both existing bureau's activity evaluation and proposed plan design evaluation and plan interest contribution. Thus, participation of employee, customer and stakeholder on the bureau plan activities shows that information transparency is improved much.

The first version of the E-government system evaluation in Afar Regional State Pastoral and Agriculture bureau is anticipated. The bureau head had expressed the benefit of implementing the E-government system as follows:

The E-government system that I got the last one year was very innovative and admirable investigated because everyone clamped for the implementation of the system in our bureau. I like the implemented E-government system because it brings the ear of the top level management to each individual employee and it minimize the customers' waiting time to communicate with top level management. Moreover the E-government system increases the development of good governance and everybody can explain his/her feeling and opinion without any shame and fear because it is secured and sender source information is not visible.

As the bureau head highlights, E-government system allowed employees, middle level managers and customers to communicate easily to top management at any time and everywhere and minimize the waiting time of the customer. Also the system, increase transparency and accountability all over the activities of middle level managers and employees.

The outcome from the implemented E-government system evaluation in Afar Regional State Education bureau is interesting. The finance and Procurement head of the bureau express the implemented E-government system in the following way:

The implemented E-government system is used as a green light to make appropriate managerial decision whenever a certain problem happens. This system has a great role play with me in order to identify my defects and mistakes in every time likewise my customers can point out my black spot. In advance, my boss can comment me easily when he accesses information through this E-government system.

The Finance and Procurement head foregrounds, this E-government system controls defects of financial transaction and distribution, and resolve the defects immediately without making a major problem in the organization. Thus, the E-government system promotes vertical and horizontal accountability.

In addition to these expected consequences of the first version of the system, there were some unexpected ones. For instance, problems of accountability, transparency and public participation were not as envisioned. As the following interview quote from Afar Regional State Civil Service bureau human resource manager highlights, fear of the E-government system since it we can't imagine what it will produce compared to face to face communication.

The system increases the collaboration among employees, managers, customers and stakeholders. It promotes accountability both vertical and horizontal flow of service information it's true if and only if the top management responds periodically and timely without any bias. But, I fear that since the system is not a face to face dialogue the advantage we get from that sort of communication is missed/not invisible. Also, I fear unauthorized person repeatedly may give false feedback to somebody and the immediate response of the top management action may not be good for commenting person.

In summary, evaluation of the E-government system highlighted that the design principles produced not only expected outcomes but also some unexpected results such as the above consequence. In light of these findings, the researcher revised and refined the initial design principles.

Specifying Learning

In action research, the researcher applies a theory in a real-life situation and gain feedback from the experience (Baskerville, 1999). In evaluating the learning, it was clear that an E-government system could be built to monitor manager and employee behaviors by making them more transparent and accountable.

This research has two purposes: to develop E-government system for public sector organizations and to try to use the findings for a more generic use for enhancing transparency and accountability in the bureaus. Since one of the members of this research is an employee researcher, there is hope that correspondence after this research will be in place. Through this existing correspondence, the lessons learned were incorporated into the E-government system again. However, this also requires the need for the management to be committed to E-government system and lead the way. The managers can lead the way by increasing their

knowledge about IT and the use of the system. This does not imply that they have to be the best to operate the system. Nevertheless, for those who lack IT skills, it will be necessary to authorize an IT administrator assistant to know how an E-government system is used and how it should be operate. Therefore, it is essential to communicates why and how the E-government system used to management.

Discussion on Second Cycle Action Research

In the first action research cycle, the researchers identified three design principles intended to improve the governance quality of the three selected bureau. Our evaluation of intervention revealed some barriers that hampered E-government use in the participating organization. In the second cycle, the researchers relied on further analysis of E-government system implementation to manage the unanticipated consequence, i.e fear.

The evaluation of the first version of E-government system revealed both expected and unexpected consequences. Reflecting on these results and the one year action research project, the researchers realized to address the unexpected consequences of the design principles. In particular, the design principles did not embed the information source control idea followed in the first action research cycle. Thus, the system needs to be revised and refined based on evaluation of the first version E-government system implementations. Information source control is found important and we incorporated the principle of information source control, conveying only two possible solutions in the second action research cycle for two unexpected results. Agency control has helped us much as an insight for a solution for these problems.

Controlling Wrong Comment and Wrong Action

The researchers designed the system in a way it can enable to solve unexpected results seen during evaluation of first version E-government system implementation by the following two mechanisms: The first solution was revising the design of E-government system so that it can record mac Address and IP address of the customers and employees devices, and assigning username of employees and managers by affixed number to identify the source of the unauthorized person's repeated comment which focuses on personal case without knowing of the person who is. So we can avoid fear and biased top management decision by informing the top manager the source of information. Doing this would alleviate the source of the information and when it is repeated it will help to reject the feedback during decisions.

However, a feature of face to face communication is not implemented at this stage. We recommend top management to use both the E-government system and a face to face communication in parallel. The top management team also agreed to implement both E-government feedback response and enhance face to face communication regularly within three weeks for employees and four months for customers.

Conclusion

Producing the insights gained from one year action research involving numerous data collection strategies and intervention, the study has generated a solution for the good governance problem and transparency and accountability were enhanced greatly in the selected public sector organizations. The design and development process were both based on experiences from real

life. From the lessons learned during the first version of the E-government system as an intervention, we identified anticipated and unanticipated results. These problems were addressed during the second cycle action research.

We conclude that transparency and accountability on the selected public sector organization were very much improved because of the implemented E-government system. As this project has addressed accountability and responsibility at least to some extent, other organizations that are the same situation and in the same context can benefit from it. The implemented E-government system introduced can offer better results if the first version can be enhanced to a fully-fledged system provided that all the necessary resources such as manpower, financial, and material resources are in place.

Suggestions for Further Research

This research demonstrates implementation of E-government system in public sector organizations to improve governance and enhance internal transparency and accountability. Contribution of E-government to governance improvement has been expected by government and public sector organizations.

However, the results of this implemented E-government system tend to be more than the expected in reality because the organizations employees and managers raise many existing problems of the organization internally. Besides that it important to include all planning activities and reports related to budget allocation and utilization of each department, employee, and manager performance evaluation method with the system. Our E-government system doesn't address this. Therefore other researchers can take this problem in order to include this feature in future works.

References

- Afar Civil Service Bureau, 2014. "Afar Civil Service Good governance and Rent Seeking Document," *Afar Regional State Civil Service Bureau*.
- Alehegne,D.2014, "Ethiopian strides in e-government: with committed leadership," aigaforum.com [Online]. <http://aigaforum.com/articles/Ethiopia-stride-e-government.pdf> [Accessed: 14 October 2015]
- Atkinson, R. D., and Castro, D. 2008. "Digital quality of life: Understanding the personal and social benefits of the information technology revolution," Available at SSRN 1278185.
- Barnes, S. J., and Vidgen, R. T. 2006. "Data triangulation and web quality metrics: A case study in e-government," *Information & Management* (43:6), pp. 767-777.
- Carter, L., and Bélanger, F. 2005. "The utilization of e-government services: citizen trust, innovation and acceptance factors," *Information systems journal* (15:1), pp. 5-25.

- Chee-Wee Tan, Izak Benbasat and Ronald T. Cenfetelli. 2013. "IT-Mediated Customer Service Content and Delivery In Electronic Governments: an Empirical Investigation of the Antecedents of Service quality," *MIS Quarterly*, (37 :1), pp. 77-109.
- Christian Schaupp, L., and Carter, L. 2005. "E-voting: from apathy to adoption," *Journal of Enterprise Information Management* (18:5), pp. 586-601.
- Getahun, A.2006. "ICT is Ethiopia's Number One Priority," *developing telecoms.com*
[Online]<http://www.developingtelecoms.com/business/trends-forecasts/302-ict-is-ethiopias-number-one-priority.html> [Accessed: 12 September 2014]
- DongBack. S and Gumala. W,2011. "User Satisfaction of E government Procurement Systems in Developing Countries: An Empirical Research in Indonesia," *International Conference on Information Systems*.
- Gupta, M. P., & Jana, D. (2003). E-government evaluation: A framework and case study. *Government information quarterly*, 20(4), 365-387.
- Harris, B. 2000. "E-Government: Beyond service delivery. The Changing Foundations of Power," Los Angeles, SUA.
- Hiller, J. S., and Belanger, F. 2001. "Privacy strategies for electronic government," *E-government* (200), pp. 162-198.
- Intl. Res. J. Appl. Basic. Sci. 2011. "Evaluation of E-government Initiatives in Developing Countries: ITPOSMO approach," *International Research Journal of Applied and Basic Sciences*, (2:12), PP. 439-446.
- Kaylor, C., Deshazo, R. and van Eck, D. 2001. "Gauging e-government: a report on implementing services among American cities," *Government Information Quarterly* (18), pp. 293-307.
- Kim, S., Kim, H. J., and Lee, H. 2009. "An institutional analysis of an e-government system for anti-corruption: The case of OPEN," *Government Information Quarterly* (26:1), pp. 42-50.

- Nnanyelugo Aham-Anyanwu, Honglei Li, 2015. "Toward E-Public Engagement: A Review of Public Participation for Government Governance," *International Conference on Information Systems*.
- Owei, Vesper and Maumbe, Blessing, 2006. "E-Services in a Developing Country: E-Profile-Based Distribution and Awareness Generation Approaches," *ICIS*, PP. 56.
- Pathak, R. D., Singh, G., Belwal, R., and Smith, R. F. I. 2007. "E-governance and Corruption-developments and Issues in Ethiopia," *Public Organization Review* (7:3), pp. 195-208.
- Pilling, D., and Boeltzig, H. 2007. "Moving toward e-government: effective strategies for increasing access and use of the internet among non-internet users in the US and UK," *In Proceedings of the 8th annual international conference on Digital government research: bridging disciplines & domains*, pp. 35-46).
- Rossel, P., and Finger, M. 2007. "Conceptualizing e-governance," *In Proceedings of the 1st international conference on Theory and practice of electronic governance*, pp. 399-407.
- Rugchatjaroen, K. 2015. "Success of Electronic Government Project in Bangkok Metropolis: An ITPOSMO Approach," *International Journal of Social Science and Humanity* (5:9).
- Sobhi, Faris Al and Shafi, Shafi Al. 2009. "Citizens' Acceptance of eGovernment Services: An Empirical Study of Medina City," *AMCIS*, PP. 223.
- Srivastava, Shirish C.; Teo, Thompson; and Chandra, Shalini. 2007, "E-Government and Corruption: A Cross-Country Analysis," *ICIS*, PP. 77.
- Srivastava, Shirish C. and Teo, Thompson S.H. 2010. "E-Government, E-Business, and National Economic Performance," *Communications of the Association for Information Systems*, (26:14).
- UN, 2014. "United Nation E-government Survey," publicadministration.un.org [Online] <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2014> [Accessed: 21 May 2015].