
Assessing the impact of e-governance on the performance of inter-institutional project cooperation: A case of Ghana

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Abstract:

This study investigates the impact of e-government and e-governance on the performance of inter-institutional collaboration among public institutions in Ghana. The advancement in information and communication technology equipment and the increasing use of the internet has been the backbone of the success of this new paradigm. In recent times development countries have adopted this paradigm shift in public administration so as to improve on service innovation to create value and quality for citizens and other actors involved in this social ecosystem. The study adopted an empirical approach by conducting a Pearson correlation and linear regression analysis to examine the casual statistical influence of independent variables on the performance on collaboration activities. The findings supported the stipulated hypothesis for the purpose of this study.

Key words: E-governance, information and communication, e-government, innovation, MMDA's, Ghana

1. INTRODUCTION:

The governance of nations in the past decades have experienced a dramatic change in trend from a more centralized to a decentralized one that incorporate diverse actors from diverse institutions both in the public sector and private sector with the aim of achieving national economic growth and development. This form of governance create a complex network that cannot be managed with traditional mechanisms of public administration. The characteristics of this network turns to compose of diverse actors belonging to various entity within both spatial and non-spatial distribution therefore posing as a challenge to coordinating and interaction activities that is needed to realize set targets (Coleman, 2005). Furthermore, in the 21st century public administration has evolved from its traditional way of bureaucratic to a more flexible one that integrate various actors within countries or geographical locations. This would include public institutions, private institutions and citizens in a large extent.

The adoption of e-governance that translates into the adoption and use of elements of information and communication technology to enable citizens and other institutions gain access to information and other government processes in a timely manner has been fueled by the demand of citizens for a more transparent government in terms of fighting corruption and further improving the performance of public sector personnel and organizations. In addition the ever growing usage of the internet and the implementation of government web portals to enhance the delivery of services to targeted population within and outside a particular nation. The number of internet user in recent years has increased rapidly and still on a steady growth and this would serve as the backbone for successful realization of e-governance objectives. For instance as in most developing countries that turn to implement e-government mechanism adopts the establishing

and implementation of web portals that provides one-stop location for access to all government services coupled with a feedback loop. In 2011 the government of Ghana moved a step further by implementing strategies that migrates the national government services in various public institutions unto the World Wide Web hosted under the domain name www.eservices.gov.gh (UNDP, 1999; gudailis, 2001, Haque, 2002).

The implementation of e-governance mechanism provides host nations and its institution a number of merits that includes reduction in waste in terms of transaction cost and time associated with the execution of projects. Due to the feedback loop integrated in e-government systems the anticipated time of transaction is reduced as compared to traditional methods further enhancing the communication process. In addition they provide incentive for transparent cooperation within information seeker and the targeted organization. When there are mechanisms in place to monitor and improve the communication process citizens turn to gain confident in the information distribution channel and this breed trust in the activities of public institutions. Furthermore, the quality of service provided is improved through this process. The introduction of this online platform serves as a social bridge to connect the various actors that are involved in this complex social network. This bridge eliminates the structural hole that exist in most social network that results in inefficient coordination and coordination activities needed. It also aid in the improvement of social exchange therefore enabling the creation of huge social capital that diverse entities can tap in for the growth and development of entire nation as a whole (Wadia, 2000; Siliconinda, 2001; Masell & When, 1998; Granvotter, 1994; Burt, 1972).

Despite the growing research on e-governance and e-government there exist limited literature on this topic in relation to developing countries. Although the studies on this

subject matter is limited there exist some number of studies that have been conducted in the areas of opportunity and challenges of adopting and implementing e-governance mechanism, developing and performance of some e-governance projects in developing countries (e.g. Coleman, 2005; Ndou, 2004). Therefore there is much need research into this area if the benefits derived from this process can be ascertained in view of the complex interactions involved. From this perspective, this study examines the performance of e-governance in relation to inter-institutional collaboration. This study examines the question as to how availability of e-government portal influence the discharge of duties and interaction and coordination activities with other agencies of government. Further the introduction of these services is deem to provide grounds for flexible forms of cooperation and collaboration with other agencies at relatively cheap transaction cost whilst attaining an increase in performance in terms of execution of projects and policies among others.

In addition the study investigates how the adaptation of e-governance enable collaboration institutions gain access to relevant information timely, transparency in the discharge of duties, and dissemination of information among various actors. The rest of the studies is arranged as follows, section 2 focus on literature review on the subject that is e-government and inter-institutional collaboration. It further presents the theoretical background and hypothesis for this study, section 3 discusses the methodology adopted of this study, section 4 discusses the findings of this study and lastly section 5 presents the conclusion of the study.

SECTION 2: THEORETICAL BACKGROUND AND HYPOTHESIS

The introduction of e-government has revolutionized the manner in which public governance and activities take place.

This new form of governance mechanism has reduced the bureaucracy associated with the traditional system. This system is to ensure development of channels that will ensure accountability and transparency in the daily discharge of government agencies, duties and others. This has resulted in the redesign of institutions that are involved in the governance of the public. This redesign of governance has provided the grounds for inter-organizational collaboration so as to enact effective and implement effective policies. Therefore public manager within this complex network should be able to adopt to the changing environment so as to realize the sustainability of this process (Vangen & Huxham, 2003; Barnes et al, 2003; Skelcher et al, 2005).

In addition, the introduction of this system has facilitated the collaboration of various institutions within the governing process. Public managers of various agencies within this network comes together in other to achieve the aim of accountability or transparency that citizens expect. This interaction between various actors turn to be cumbersome in the traditional way of governance. The adaptation of the digital platform and integration of e-commerce mechanism in public governance does not only improve the governing process but it creates a new trend of institutional collaboration and learning. Therefore to have a successful network there is the need to have an efficient interaction or else the objects of this platform as to curbing corruption or accountability would not be attained (Jeffares & Skelcher, 2011; During and Osuna, 1994). In order to gain the needed benefits from this network there is the need to have an improved knowledge and information flow among actors of the network. Since almost all public policy design and implementation decision making is not solely undertaken by a single entity, it is critical to have a clearly defined path of interaction between the various actors involved. The flow of information and knowledge within the network have a significant impact on the decision making process. The

inclusion of ICT has reduced the time associated with information gathering associated with the traditional method since cooperating entities can obtain information through government portals and others. Furthermore the introduction of ICT also enables smooth communication between actors since meeting and other activities needed to achieve the objective of an inter-institutional cooperation through the use of technological equipment and strategies. This enable institutions to obtain the relevant information as timely as possible since this method eliminates geographical barriers without distorting facts and data. For instance public managers involved in the development of a particular public project that are located in diverse geographical locations at a particular period can conduct face-face online meeting so as to share information and data needed. During this process the managers are able to interact, share information and other relevant data in a more reliable medium that is fast and relatively less costly. Furthermore the source of information can be reliable since it emerge from key informants. This process aid in the development of a resilient relation ties and this has a significant impact on the performance of inter-institutional collaboration at a given time frame (Weiss et al, 2011; Berkes, 2009; Janssen et al, 2006). When the needed information is shared among the diverse actors it boost the steady formulation and implementation of strategies and policies across various boards and this enable institutions to evaluate and review decisions in a timely manner in order to avoid waste. Based on the above the following hypothesis that seeks to examine how e-governance mechanism facilitate access and sharing of information among diverse public managers and its impact on inter-institutional performance.

H1: The adaptation of e-governance mechanism aids public manager/actors involved in an inter-institutional collaboration

gain access to relevant information timely and this has a positive impact on inter-institutional project performance.

One essential factor for the adoption and implementation of e-governance mechanism is to curb the issue of corruption and promote transparency in public dealings at any given period of time. Since information associated with a particular project is relatively available to all critical stakeholders in the ecosystem. Therefore members in this ecosystem turn to be judges as to where resources are allocated and utilized and if any form of in appropriation are found reported for accurate correction. This serves as a check on the utilization of resource and abuse of power that was associated with the pervious forms of bureaucracy. This is so because e-governance provides the grounds for co-management of public resources. This further enhances the protection of public spending and others (Folke et al, 2005; Olsson et al, 2007). In the long run this boost the service delivery process of institutions since other members of this ecosystem or network would serve as a source for evaluating public policies and also how they affect other actors. Citizens can provide feedback on the consequences of certain policies and project that public institutions provided and this serves as a timely and prompt to improve on a service or product (Galbi, 2001). In addition, the motive behind the adoption of e-governance is to reduce corruption and make public managers more accountable while promoting innovation in public service delivery and reduction in waste in terms of time and cost (Pardo, 2000; Heeks, 2001).

This process has a positive influence on the value of the service or project undertaken. Since the central theme of public manager is to utilize and allocate natural resources in an efficient manner so as to realize maximum utility for its citizenry. When service are perceive to be of immense value it promotes and provide grounds for the maintenance of institutional relationship and learning. Since public institutions

like most organizations is a learning one it is critical for institutions to provide it member for the incentive to continue the learning process which is essential to development and sustainability of institutional performance (Ghere & Young, 1998). This transparency of information within this social network contributes to the success of inter-institutional collaboration due to the fact that actors or stakeholders in this ecosystem are able to gain relevant information whilst the feedback loop enables improvement and value creation among stakeholders. Based on the above theoretical background the hypothesis below was formulated;

H2: the usage of ICT strategies and mechanism in the discharge of public institutions activities provides the needed transparency for attaining inter-institutional collaboration performance.

Insofar as e-government or e-governance has a significant influence on the decision making of a firm and also enhancement of public institutions reputation has further served as a breeding ground for confidants and trust development among various stakeholders. The development of trust is essential if there is going to be a sustainable innovation in the public service or administration process. When stakeholders for instance citizen have access to information related to how public resources are allocated and utilized it aids in the development of positive perception towards the activities of public institutions. And this enables these stakeholder to contribute its quota to the maintenance and development of this network (Upadhyaya, 2000; OECD, 2001; Silicconnodia, 2001). Furthermore the relationship that e-governance creates between the various stakeholders enable actors to gain trust for each other therefore reducing the level of reluctant that hinders decision making and development of strategies and policies for nation benefits since actor would provide timely information because of the trust that stakeholder have in a particular

system. This arises because members turn to co-produce or manage a particular project resulting in collective benefits and development (Bhatnager & Vyas, 2001; Hajer & Wagenaar, 2003). The continuous interaction between the various actors enable each actor to assess the trustworthiness of each one. And this aid to shape the character of each actor so as to be seen as worthy by other actors in order to promote it's institutional reputation and others. This has a positive impact on the learning process of an institution and further contributes to the performance of a particular collaboration among actor (Mayer et al, 1995, McEvily & Zatheer, 2004).

In addition, trust enables the creation of a knowledge base that is needed for continuous learning process that is central to the maintenance and sustainability of any inter-institutional collaboration. The value of information and knowledge transferred among the various stakeholders involved in this social network is enhanced and this has a positive impact on the development of a relevant social capital needed. On the other side trust provides the incentive for diverse actors to tap into the social capital available for collective benefits and development (Jeffares & Skelcher, 2011; Bhatnager, 2003; Coleman, 1988; Yoon & Hyun, 2010). The hypothesis that examines the role trust play in the performance of inter-institutional collaboration in the public sector is based on the above literature;

H3: The interaction between diverse actors in inter-institutional collaboration enable actors to assess the trustworthiness of each other and this has a positive impact on the performance of such collaboration.

Although the introduction of e-governance has facilitated the sharing of information in inter-institutional collaboration breed grounds for the development and creation of the needed knowledge base to enhance value creation in relation to service

development and delivery. One aspect that needs to be considered is the member of subgroups associated with each actor within the stakeholder ecosystem. Therefore the adaptation of ICT strategies serves as a medium to disseminate and diffuse information and knowledge between the various groups and subgroups at a relevant time period. This would prevent the formation of strong network with weak ties as advocated by some scholars in economic sociology. Information and knowledge is diffused among all institutions and its affiliate agencies through the usage of the internet and institutional intranet speeds up the diffusion process (Granvotter, 1985; 1994; Burt, 1982; Coleman, 2005).

In addition, several studies have acknowledged the benefits that institutions involved in the collective design and implementation of development policies and strategies through the implementation of institutional and departmental intranet that fosters interaction and communication activities. This has eliminated the barriers that affect institutional performance and have boost both decentralized leadership and implementation of decision across nation. This is because various actors in the subgroup such as the district governance level contributes to the decision making process from the onset as per the traditional method where policy were formulated at the top level and shove down other region, municipal and district levels and vice versa. The dissemination of information turns to be more efficient through this medium as compared to other forms (Orrego et al, 2000; Chadwick & May, 2003; Zeitlin, 2009). Based on this the hypothesis below was formulated;

H4: the usage of institutional intranets influence the dissemination and diffusion of information among diverse subgroups associated with institutions involved in inter-institutional collaboration has a positive impact on the performance of this collaboration.

SECTION 3 RESEARCH METHODOLOGY

3.1 Research Method and Data Analysis

The section 3 of this study presents the research method adopted for this study and how data acquired for this purpose would be analyzed. A quantitative approach was adopted due to the empirical nature of this study. Data for the purpose of this study was gathered through a field survey conducted among public institutions and agencies such as metropolitan, municipal and district assemblies and local government offices across the Ghana.

Furthermore in order to test the hypothesis stated and arrive at a relevant findings, there is the need to identify the variables (both dependent and independent variable) that would be measured. The dependent variable for this study is the performance of inter-institutional collaboration (IIP). Also the independent variables used are access to information timely (AIT), transparency (TRAP), trust (TRT) and dissemination of information among subgroups such as local government agencies (DIMSG). These four independent variable was test to ascertain how they influence the performance of inter-institutional collaboration in lieu of growth e-governance strategies and mechanism implementation.

Furthermore in order to ascertain the statistical significant of the relationship test, both Pearson correlation and linear regression is conducted to examine the causal relationship between the dependent and independent variables. Linear regression Mode:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon$$

3.2 Sampling Method

In order to arrive at appropriate findings the process of choosing a relevant sample population cannot be overlooked. The sampling method adopted for this study was a purpose one.

This is because it enables us to identify the relevant players in this ecosystem. By identifying the relevant players in this ecosystem provides the grounds to contact key informants so as to derive the most benefit out of the responses to be provided. Furthermore, contacting key informants ensure the quality of the data used for the purpose of this study (Polit et al, 2001, Campbell, 1995).

In this study the key informant identified was the head of public institutions that have their institutional activities migrated onto the e-government service portal of Ghana since its introduction in 2011.

3.3 Data collection and Measurement

The process of data collection and management turns to be a cumbersome one that needs to conduct methodically in order to avoid double response and reliability. Firstly the email address of all Metropolitan, Municipal and District Assemblies (MMDA's) was collected through yellow pages and emails was sent out to sort the consent of public managers for this study. In total 120 emails were sent out and after a month's time 60 personnel responded to take part in this survey. The online survey questionnaire was sent to this respondents to be completed. After a period of three weeks a response rate of 38 was resent representing 68 percent. This response rate turns out to be small for our empirical study.

Therefore to increase the rate of response consent of respondents was sort to ask its members in various departments to help complete the questionnaire. During this process through the respondents we were able to include a total of 50 more respondents. This increase our response rate and increased the sample size of the study. At the end of the data collection process a total of 88 respondents was accumulated. Data acquired was stored in Microsoft Excel 2013 and later transferred to STATA version 13. Lastly the response was measured on a 7-liket scale.

3.4 Data reliability and validity

In order to infer from the statistical finding that is arrived at, there is the essential need to conduct a reliability and validity test to ascertain consistency within variables understudy. In order to examine the inter-variable consistency the Cronbach Alpha test was conducted. The result from the alpha test was 0.87 suggesting that there is to some significant extent consistency within the various variables. Therefore providing the base to accept the result from both the Pearson correlation analysis and linear regression analysis.

Furthermore to deal with the collinearly associated with data from field survey, a collinearly test was conducted. The result from this test was 5. 23 indicating to be more below the threshold of the numerical value of 10. Therefore in this study collinear was not a problem.

SECTION 4 DATA ANALYSIS AND FINDINGS

This section presents the statistical findings arrived at through the analyses of data acquired for the purpose of this study. The table 4-1 presents the description statistics and Pearson correlation coefficients of both the dependent and the independent variables examined. Table 4-2 further present the linear regression output.

Table 4-1 Descriptive statistics and Pearson correlation

Variables	N	Mean	S.D	2	3	4	5
1.IIP	88	4.56	.894	.342**	.431*	.523	.445*
2.AIT	88	4.06	.810		.315	.228*	.603
3.TRAP	88	3.83	1.234			.400	.512
4.TRT	88	5.14	.989				.486**
5. DIMSG	88	4.76	1.534				

*p ≤ 0.05 (2-tailed), ** p ≤ 0.01 (2-tailed)

Table 4-2 linear regression output

Model	R-square	Unstandardized Coefficient		Standardized Coefficient	t-value
		Beta (β)	Std Error	Beta (β)	
1. IIP	.232	.256	.033	.203	1.001
2. IIP, AIT	.365	.436	.043	-.283	1.053
3. IIP, AIT, TRAP	.487	.513	.068	-.367	2.435
4. IIP, AIT, TRAP, TRT	.678	.583	.071	.476	3.305
5. IIP, AIT, TRAP, TRT, DIMSG	.778	.648	.078	-.241	1.084

According to the statistical analysis above all the independent variables tested has a significant correlation coefficient with the dependent variable. Inferences from this suggest that to a large extent these variable contribute to the attainment of high positive performance in inter-institutional relationship. And this has a positive impact on collaboration activities and enhancing the performance of various institutions. According to the statistical values the variable that examines how e-governance influence the dissemination of information among subgroups had the high correlation coefficient at 0.445 at $p \leq 0.05$ (2-tailed). Other coefficient can be inferred from the correlation table above. According to the correlation output it indicates that independent variables have a positive relationship to some extent with the dependent variables.

Furthermore, to examine the statistical influence of independent variables and the dependent variable linear regression was conducted. The linear regression conducted in 5 model within an additional variables added to each model from model 1 to model 5. According to the regression output arrived at the R-square value obtained was 0.774 signifying that all the independent variable had a significant of over 70 percent on the dependent variable. The model 5 obtained this r-square value. This suggests that the variables such as trust, information sharing that is facilitated with the aid of information and communication technology mechanism such as the provision of internet portals, inter-departmental intranets among others

contribute significantly to the performance of inter-institutional collaboration. And this is consistent with other studies that suggest that e-governance facilitates the information and knowledge sharing and further contributing to the formation of a sustainable knowledge base. And this has a positive impact on the continuous learning process of the institutions involved. This creates a social capital that enables institutions to tap into to aid public administration innovation in terms of service delivery in a timely manner while meeting citizen expectation in relation to value and quality.

SECTION 5 CONCLUSION AND FURTHER RESEARCH AREA

The central theme of this study is to assess the impact of e-governance mechanism on the performance on inter-institutional collaboration. The study was motivated by the growing number of literature in this field. Despite this growth in research in this area there is limited studies being conducted in developing economies especially collaboration between various actors in this ecosystem and how e-governance empirically influence the performance of inter-institutional activities? The study adopted an empirical approach by using quantitative methods to gather data through the administration of questionnaire to public managers in MMDA's in Ghana. In order to examine the dependent and independent variables a Pearson correlation and linear regression analyses was conducted. The statistical findings arrived at supported the stipulated hypothesis for this study. This provided the grounds to infer that the independent variable tested has to some large extent had a significant influence in the performance of inter-institutional collaboration.

Despite of the contribution that this study makes to the growing literature in e-governance and e-government and the social capital that various actors within this social ecosystem

enjoyed there exist a number of constraints that affects the generalization of this study. Further studies should be conducted using a large sample size since the sample size used for this study is relatively small. The larger and inclusion of a large dataset would improve the generalization principle of empirical findings and study. And also longitudinal study should be conducted to examine how this performance changes overtime.

REFERENCES

1. Coleman, S. (2005). African e-governance-Opportunities and Challenges. *Commission for Africa*, 1–7. Retrieved from http://www.ansaafrica.net/uploads/documents/publications/Coleman_e-Governance.pdf
2. Bhatnagar, S. (2003). E-government and access to information. *UNPAN1.un.org*, 24–32.
3. Chadwick, A., & May, C. (2003). Interaction between States and Citizens in the Age of the Internet: “e-Government” in the United States, Britain, and the European Union., *16(2)*, 271–300. <http://doi.org/10.1111/1468-0491.00216>
4. Coleman, S. (2005). African e-governance-Opportunities and Challenges. *Commission for Africa*, 1–7. Retrieved from http://www.ansaafrica.net/uploads/documents/publications/Coleman_e-Governance.pdf
5. Haque, M. S. (2002). E-Governance in India: Its Impacts on Relations Amongcitizens, Politicians and Public Servants. *International Review of Administrative Sciences*, *68(2)*, 231–250. <http://doi.org/10.1177/0020852302682005>
6. Ndou, V. (2004). E-government for developing countries: opportunities and challenges. ... *of Information Systems in Developing Countries*, *18(1)*, 1–24. <http://doi.org/>
7. Jeffares, S., & Skelcher, C. (2011). Democratic subjectivities in network governance: A Q methodology study of

- ENGLISH and DUTCH public managers. *Public Administration*, 89(4), 1253–1273. <http://doi.org/10.1111/j.1467-9299.2010.01888.x>
8. Weiss, K., Hamann, M., Kinney, M., & Marsh, H. (2012). Knowledge exchange and policy influence in a marine resource governance network. *Global Environmental Change*, 22(1), 178–188. <http://doi.org/10.1016/j.gloenvcha.2011.09.007>
 9. Yoon, W., & Hyun, E. (2010). Economic, social and institutional conditions of network governance: Network governance in East Asia. *Management Decision*, 48(8), 1212–1229. <http://doi.org/10.1108/00251741011076753>
 10. Granovetter, M. (1985). Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology*, 91(3), 481. <http://doi.org/10.1086/228311>
 11. Zeitlin, J. (2009). The Coordination of the European Union: Exploring the Capacities of Networked Governance. By Andrew Jordan and Adriaan Schout. Oxford: Oxford University Press, 2008. 311p. \$39.95. *Perspectives on Politics*, 7(03), 695. <http://doi.org/10.1017/S1537592709990752>
 12. Tortoriello, M., Reagans, R., & McEvily, B. (2012). Bridging the Knowledge Gap: The Influence of Strong Ties, Network Cohesion, and Network Range on the Transfer of Knowledge between Organizational Units. *Organization Science*, 23(4), 1024–1039. <http://doi.org/10.1287/orsc.1110.0688>
 13. Chorus, C. G., Molin, E. J. E., & van Wee, B. (2006). Travel information as an instrument to change car drivers travel choices: a literature review. *European Journal of Transport and Infrastructure Research*, 6, 335–364.
 14. Clift, S. (2004). E-democracy, e-governance and public network. *Open Source-Jahrbuch*, 1–13. Retrieved from http://www.opensourcejahrbuch.de/Archiv/2006/abstracts/kapitel_04/abstracts/2004/pdfs/IV-5-Clift.pdf

15. Tan, C.-W., Pan, S. L., & Lim, E. T. K. (2005). Managing Stakeholder Interests in e-Government Implementation. *Journal of Global Information Management*, 13(1), 31–53. <http://doi.org/10.4018/jgim.2005010102>
16. Tapscott, D., & Agnew, D. (1999). Introduction to Information Technology, (December), 34–37.