

Constraints to Automating Public Sector Service Deliveries in Ghana: The Example of Permit Acquisition and Detection of Unauthorized Building Processes in Metropolitan Assemblies

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Abstract

Automated public services have brought enormous benefits to many countries; yet developing countries have not fully exploited its benefits owing to certain barriers and Ghana is no exception to this. This research explores the factors militating against automating permit acquisition and detection of unauthorized building processes in Metropolitan Assemblies in Ghana, using the Sekondi-Takoradi Metropolitan Assembly as a case study, and come out with measures to curb them. This survey used questionnaires to collect data from 75 respondents; data was analyzed using Relative Importance Analysis. The survey revealed that barriers to automating permit acquisition and detection of unauthorized building processes in the Metropolis were Political, Educational, Cultural, Social, Administrative, Economical, Legislative and Technological barriers; with political barriers contributing most to the phenomena while technological barriers were relatively the least contributing barrier. This paper will help local authorities in policy formulation to curb barriers to automating public services.

Keywords: Automating, Unauthorized Buildings, Permit, Barriers and Questionnaire.

Introduction

Public sector service today faces challenges that are entirely different from the public service of yore; as technological innovations abound and globalization deepens amidst the increasingly differentiated populations has necessitated the need for decisions to be made efficiently and in a targeted and consistent manner (Yew, 2010). As a result, Governments and Public Administrations all over the world seek to provide enhanced services to the citizens and businesses while increasing employee efficiency and productivity; making them more responsive to the public as well as conserving financial resources (Nintex, 2013). A research by Mintzberg (1973), estimated that, in a typical traditional or classic administrative set up, about 95 percent of a manager's time is spent in written and verbal communication, contributing to bureaucracy and inefficiencies in decision making, whereas much of which could be altered positively by automating administrative processes.

Over the years, decentralization of public sector services alone has done little to eradicate bureaucracy, corruption and inefficiencies that have characterized public sector service delivery; to this extent, Ioannidis *et al.* (2007) argued that, classic administrative control procedures in the public sector should be augmented by automated services. Automation aids mappings to external data sources that are in relational format. This implies information could be shared and easily transferred among several departments (Rubin *et al.*, 2002). Thus, by automation, other departments input could be sourced before permits are issued to avoid any future implications; increasing operational efficiencies, accountability and hurting corruption (Lim, 2010; Jackson, 2015).

Automating stems from automation. Automation connotes a *system in which a workplace or process has been converted to one that replaces or minimizes human labor with mechanical or electronic equipment* (Microsoft Encarta, 2009). Public sector services could be highly or fully automated, where human labor is totally absent, or use automation technology in some part of their operations, where human labor is augmented by electronic equipment to enhance efficiency and productivity (Microsoft Encarta, 2009; Harrison, 2013). Contextually, automating permit acquisition and detection of unauthorized building processes refers to the use of integrated computer and communications systems to support administrative procedures, thus replacing or minimizing human labor with mechanical or electronic equipment, to enhance efficiency and productivity (see Olson and Lucas, 1982). Thus, this survey seeks to find answers to the research questions:

- What are the factors militating against automating permit acquisition and detection of unauthorized building processes in the Sekondi-Takoradi Metropolitan Assembly.
- How will an automated permit acquisition process be like.
- What measures should be instituted to curb the factors militating against automating permit acquisition and detection of unauthorized building processes in the Sekondi-Takoradi Metropolitan Assembly.

It worth emphasizing that in this research, constraints to automating public sector services are the barriers restraining automating public sector services.

It is hoped that, the findings of this paper will be found informative to opinion leaders, stake-holders as well as civil education groups in the metropolis; thus making them more proactive and strategic in prioritizing in dealing with the barriers to automating permit acquisition and detection of unauthorized buildings.

Automating Building Permit Acquisition and Detection of Unauthorized Buildings in Ghana

Building permit is a building development consents granted to any developer or person by a statutory authority to construct buildings at approved locations, within a set time frame and in line with local or national building regulations. Likewise, Building permit is said to be a legal document, covering any building for which its plans are found to be suitable for implementation and eventually, human habitation (GhanaDistricts.com, 2006). By regulation, developers are required to obtain development permits from the Town and Country Planning Department, which is now a division under the Metropolitan, Municipal or District Assemblies across the nation; and building permit from the Metropolitan, Municipal or District Assemblies. Nonetheless, due to the cumbersome nature of the permit acquisition process and cost (measured in terms of time and actual payment of fees), many developers avoid applying to obtain the required permits before they start their developments. Though permits are supposed to be granted or issued by authorities within 90 days; due to inability of local authorities concern to meet regularly, most often, it can even travel over years to get permit (Freiku, 2003). Hence, according to Kahraman *et al.* (2006), people build without authorization, legal bureaucratic sanction and without regular engineering control and checks. In an attempt to curb this menace, Ioannidis *et al.* (2007) and Somiah *et al.* (2015) strongly advocated for automating detection of unauthorized buildings and permit acquisition processes respectively. In this paper, building permit and development permit are termed building permit or permit for clarity of understanding and to avoid ambiguity in expression. Moreso, local authority (ies) refers to the metropolitan, municipal and district assemblies in Ghana (see Republic of Ghana, 1993).

Currently, the permit acquisition processes and detection of unauthorized buildings are done manually by the local authorities; thus, unauthorized buildings are not detected early enough for appropriate measures to be taken to address them. Furthermore, Ioannidis *et al.* (2007) observed that placing inspectors at areas to stop construction of unauthorized buildings largely encourage corruption, thus they are not able to strictly implement the dictates of the building regulations. Thus, Freiku (2003) observed that buildings are even sited on water ways and other unapproved places; marring the spatial view of the vicinity, impeding fire safety; inducing flood, among others (Lai and Ho, 2001; Ameyiboret *et al.*, 2003; Ahmed and Dinye, 2011). However, Ioannidis *et al.* (2007) opined that, the contribution of modern techniques and tools is necessary for the design of an automated and objective procedure for permit acquisition and detection of unauthorized buildings. Such procedures have been already tested in some countries to be prompt, efficient and cost-effective in curbing construction of unauthorized buildings.

Accordingly, Harrison (2013) observed that, the automation could be full or partial; with full automation, human labor is totally absent whereas with partial automation, human labor is augmented by the use of automation technology in some part of the operations to enhance efficiency and productivity (Microsoft Encarta, 2009). Automated approaches are of great importance, as they can reduce the amount of manual work, and consequently lead to a reduction of the time and cost of the process (Khoshelham *et al.*, 2010). In relation to detection of unauthorized buildings, Singhal and Radhika (2014) proposed automated method for detecting unauthorized buildings from high resolution color aerial images. This approach is based on color invariant features and canny edge detection technique. This technique has been proven to reduce the time taken for building detection, minimizes the human intervention in the detection process and produces accurate and reliable results barring its limitation (Singhal and Radhika, 2014). Similarly, Kim and Muller (1999) used single aerial image for automatic building detection by utilizing a graph-based approach.

Recently, India has enhanced automation of building detection on a pilot base in a small area of 20 km² in Delhi using high resolution satellite imaging and a special multimedia mapping to build 3D Geographical Information System (GIS) with live cameras (GIS development, 2007). Thus, there are availability of plethora of automated techniques that one can choose from, but that notwithstanding, local authorities have not even started exploiting its benefits.

Furthermore, automating permit acquisition processes generally refers to the use of integrated computer and communications systems, that may include word processing for generating correspondence, teleconferencing services, facsimile transmission, electronic filing systems, on-line calendar systems, electronic message systems for person to- person communication and links to corporate files and outside services, to support administrative procedures aimed at not only improving the efficiency of clerical and administrative procedures but also, altering the concept of administrative procedures for the better. Thus, managers gain increased control over their operations (Carlisle, 1978; Olson and Lucas, 1982).

A description of a proposed automated permit acquisition system to local authorities

For partial automation, clients may do document authentication and verification as well as uploading their building drawings and applying for the permit online. The authority then will pick it up for further processing to hastening the permit acquisition process. There should be an electronic interface that helps the applicant to track the status of his or her application online so that he or she will only come to the office for collection when the permit is ready. Thus, only expected number of clients would be attended to in a day. However, with fully automated systems, application for permit will be done online. The drawings and necessary documents will be uploaded onto a

corporate system that interfaces the operations of all the authorities that are concern with issuing of building permits, the system does the vetting and generates cost of permit for the client for subsequent payment. The payment could be done with electronic cards and the authority can email or post the approval or permit to the applicant (see Carlisle, 1978; Olson and Lucas, 1982).

From the literature reviewed in this study, there are numerous benefits that automating permit acquisition and detection of unauthorized building processes in Ghana would bring to the populace and the nation at large; more so, there are a number of research on barriers to automating services in some developed and developing countries across the globe; however, such studies have not been done in Ghana, specifically pertaining to the operations of Metropolitan Assemblies in Ghana; thus, this paper contributes to the existing studies and knowledge by exploring the factors militating against automating permit acquisition and detection of unauthorized building processes in Metropolitan Assemblies in Ghana, using the Sekondi-Takoradi Metropolitan Assembly as a case study, and come out with measures to address them. The Sekondi-Takoradi Metropolitan Assembly was chosen for the study because it is one particular urban area in Ghana, that has been receiving tremendous development since the discovery of oil in the western region of Ghana; and in the quest for people providing shelter, offices among others, to meet the developmental need of the populace and businesses alike, they sometimes build in an unauthorized manner (see Global Communities, 2013).

Though the findings of this paper may be a true representation of what is prevailing in various metropolises, municipalities and districts in Ghana; and may even be helpful to authorities concern with local Assemblies governance in Ghana. It is only limited to the Sekondi-Takoradi Metropolis and to a greater extent, the Metropolitan Assemblies in Ghana.

Barriers to Automating Permit Acquisition and Detection of Unauthorized Building Processes in Ghana

Although automated public services have been proven to have brought numerous benefits to both institutions and the public at large (Vassilakis *et al.*, 2005); developing countries are far-off from realizing these benefits owing to certain barriers (Khan *et al.*, 2012); and Ghana is no exception to this phenomena. Accordingly, Bingimals (2009) classified barriers to automation largely as extrinsic and intrinsic. Specifically, Williams *et al.* (2000) and Khan *et al.* (2012) classified the barriers, among other things, to include lack of knowledge and skill, insufficient funds, lack of political will and corruption, and access to technology. In addition, Ertmer (2001) and Hew and Brush (2007) observed that, lack of technical support and training, time, attitudes, culture and beliefs militate against automating processes. They further explained that beliefs determine ones planning style and implementations. More so, the report of European Schoolnet (2006) identified, among other barriers, low motivation for using new technologies and lack of confidence as barriers to automating processes. Olson and Lucas (1982), Whitford and Moffett (1996) and Adzroe and Ingirige (2014) asserted that cost of investment, resistance to change, complications of using new technology, lack of IT skills, legal barriers, availability of professional software, cultural influence, socio-economic problems, and difficulties in interfacing with other systems accounts for the inability to automate services.

Thus, from the forgone discussions, there is plethora of barriers that could militate against automating permit acquisition and detection of unauthorized buildings processes. However, to make the discussion well focused, the identified barriers have been organized under eight main thematic headings namely: legislative, economic, administrative, technological, educational, cultural, social and political barriers (see Vassilakis *et al.*, 2005).

Legislative barriers

These barriers include lack of adequately suitable legal framework that addresses automated service (Sin Tan, *et al.*, 2010). In Ghana, the legal requirements for physical presence of client or his agents in submitting building drawings for permit approval coupled with physical inspection of site prior to issuance of permit may hinder the transition to electronic or automate services, since some manual processes will still remain in the workflow (see Republic of Ghana, 1993; Republic of Ghana, 1996). For services where multiple parties are involved, multiple changes in legislation, systems and processes may be required for modernization (Industry Advisory Council E Government Shared Interest Group, 2002; Vassilakis *et al.*, 2005).

Economic barriers

Cost is a very influential barrier to automating the processes of permit acquisition and detection of unauthorized buildings. Duan *et al.* (2002) and Vassilakis *et al.* (2005) argued that, there are costs associated with the hardware platforms, the software development and licensing as well as the hiring of an employee for electronic service operations; and sometimes, it is difficult to be convinced that these costs are justified in terms of quality of service automation offers to the public, lessening of productive hours wasted in queues, lessening movement from one department to the other in pursuit of service, improved workflow within departments and the reallocation of public workers from tedious document reception and typing to a more fruitful chores.

Administrative barriers

The need for organizational reform is another barrier to automating the processes of permit acquisition and detection of unauthorized buildings in Ghana. According to Olson and Lucas (1982), automated services do not only alter the administrative procedure in a working environment to make it more efficient, but it also changes the concept of administration itself. Thus, automating permit acquisition and detection of unauthorized building processes would necessitate organizational reforms within the local assembly. Thus, the local assembly will adopt a structure relevant to the needs of novel work and document flows; making it a more customer-centric organization. Organisational reforms may not be well accepted by the existing workers, thus ought to be introduced with extreme caution (Vassilakis *et al.*, 2005).

Furthermore, lack of qualified staffs could be another administrative barrier to automating permit acquisition and detection of unauthorized building processes in Metropolitan assemblies in Ghana. According to Adzroe and Ingirige (2014) and Agboh (2015), automation services currently depends heavily on IT staff; a resource usually scarce within public service (Vassilakis *et al.*, 2005). Though some activities may be outsourced, for example developing and managing software, but achieving high availability and error-free operation of automated services is very challenging without on-site dedicated staff (Vassilakis *et al.*, 2005). More so, partner readiness and cooperation has influence on automation. In some cases, the success of an automated service may require the involvement of organizations external to the local authority. For instance, a fully automated permit acquisition process would involve automating land search from an external department, that is, the Lands commission; but sometimes, the external bodies may not be ready (either technologically or administratively) to play the required role within the automated service (see Vassilakis *et al.*, 2005; Adzroe and Ingirige, 2014).

Technological Barriers

Security and data encryption has been very challenging barrier to automating permit acquisition and detection of unauthorized building processes in local assemblies in Ghana. In the context of public networks, through which automated services are disseminated, the issues of security and data encryption have not yet been addressed satisfactorily (Vassilakis *et al.*, 2005). Furthermore, the slow and unreliable Internet connections in the country also militate against automating permit acquisition and detection of unauthorized building processes in local assemblies in Ghana. A study by Adzroe and Ingirige (2014) revealed that end users perceive the internet (which is the primary service distribution channel) as being too slow and unreliable for their transactions with the government. This is especially true for services for which complex forms must be downloaded or large volumes of data must be uploaded (Vassilakis *et al.*, 2005).

Culture barriers

Cultural issues are major barriers to automating public services (Mehrtens *et al.*, 2001). According to Agboh (2015), general attitude against automated services could be an impediment to automation; this could also bar permit acquisition and detection of unauthorized building processes in Ghana.

There are sections of the populace and even some public workers who have negative attitude against automated services and would only use the “traditional” paper-based service channels. In some cases, this attitude has its roots in philosophical beliefs (Adzroe, 2014). More so, Vassilakis *et al.* (2005) observed that multi-lingual and multi-cultural related issues becomes barriers to automation; automated services should be made available to the targeted populace; thus automated platforms should not bar the populace by language or cultural related issues. For example, automated service may be developed only in the most-spoken language within a country thus barring a cross section of the populace that do not belong to the most spoken language bracket to use the platform (Vassilakis *et al.*, 2005).

Social barriers

Very often in organizations, employees with some implicit domain knowledge are considered to be more influential (or of a more distinguished status) within the organization (French and Raven, 1960); and the introduction of automated services may convert implicit knowledge to explicit, thus depriving these employees of their source of power; as a result, a new group of distinguished employees would be formed, consisting of the ones most closely related to automated services (Vassilakis *et al.*, 2005). Thus, the introduction of automated service necessitates some structural reforms to the organization and subsequent modifications of job descriptions (Olson and Lucas, 1982); consequently, employees may oppose such changes for several reasons including fear of job loss (Yew, 2010).

Educational Barriers

In a related instance, Duan *et al.* (2002) and Fulantelli and Allegra (2003) observed that, sometimes ignorance on the worth of automated service and return on investment in automation largely bars automation of public service.

Political Barriers

Accordingly, Mehrtens *et al.* (2001) and Irefin *et al.* (2012) attributed the barriers to automation to lack of political will to initiate and sustain automated public service. Similarly, the monopoly that local authorities enjoy in issuing permit; and monitoring to ensure that developments conform to land use plan has not compelled them to re-orient their operational procedures to make them customer-centric in meeting the demands of the populace that transact business with them.

Table 1: Barriers to Automating Permit Acquisition and Detection of Unauthorized Building Processes

Barriers	Authors
Legislative	
<i>Inadequate or lack of existing suitable legal framework backing automation of permit acquisition and detection of unauthorized building processes</i>	(see Adzroe and Ingirige, 2014).
<i>the need for modification of legislation where multiple institutions are involved</i>	(Vassilakis <i>et al.</i> , 2005).
Economic	
<i>cost of software development and licensing</i>	(Vassilakis <i>et al.</i> , 2005).
<i>turnover of technical staff</i>	(Jones <i>et al.</i> , 2003)
<i>cost of hiring employee(s) for electronic service administration</i>	(Vassilakis <i>et al.</i> , 2005).
Administrative	
<i>resistance to organizational reform</i>	(Vassilakis <i>et al.</i> , 2005)
<i>lack of knowledgeable and skilled staffs</i>	(Hew and Brush, 2007)
<i>readiness and cooperation of external department</i>	(Vassilakis <i>et al.</i> , 2005)
Technological	
<i>ineffective integration of external bodies</i>	(Sin Tan <i>et al.</i> , 2010)
<i>lack of online payment processes</i>	(Dedrick and Kraemer, 2001)
Educational	
<i>Ignorance on the worth of automated service and return on investment</i>	(Fulantelli and Allegra, 2003)
<i>lack of knowledge on automated services by management</i>	(Chau and Turner, 2002)
Political	
<i>lack of political will to initiate and sustain automated services in the public sector</i>	(Mehrtens <i>et al.</i> , 2001)
<i>State owned monopolies in issuance of permit and detection of unauthorized buildings</i>	(Irefin <i>et al.</i> , 2012)
Social	
<i>erratic power supply</i>	(Adzroe and Ingirige, 2014)
<i>unreliable internet service</i>	(Adzroe and Ingirige, 2014)
<i>fear of job loss</i>	(Yew, 2010)
Cultural	
<i>negative attitude and belief about automated services</i>	(Adzroe and Ingirige, 2014)
<i>multi-lingual deficiencies of automated service platforms</i>	(Vassilakis <i>et al.</i> , 2005)

Methodology

In relation to the aim of this study and the practical considerations and limitations of the study, a questionnaire survey approach was adopted for this study. The aim of this research was to explore the factors militating against automating permit acquisition and detection of unauthorized building processes in Metropolitan Assemblies in Ghana, using the Sekondi-Takoradi Metropolitan Assembly as a case study, and come out with measures to curb them. During the literature review nineteen variables were identified to be barriers to automating permit acquisition and detection of unauthorized building processes; and the barriers formed the basis of the questionnaire design. The questions were purposively administered to 75 respondents comprising of: seventy-two (72) Assembly members, one (1) head (or its equivalent) of Information Technology (IT), one (1) head of physical planning and one (1) metro works engineer in the metropolis to solicit their views as to the extent the identified factors militate against automating permit acquisition and detection of unauthorized building processes in the metropolis based on a five-point scale where: 1 = (strongly disagree), 2 = (disagree), 3 = (Neither), 4 = (agree) and 5 = (strongly agree); to provide a detailed scale response. More so, other questions on the survey had pre-determined answer options, which respondents had to select from. These were used to gather the respondents demographic profile (see Agboh, 2015). These respondents were purposively sampled because they were directly involved in local governance or administration in the metropolis thus, would be in better position to adequately contribute to the subject of this research. Out of the 75 questionnaire administered only 67 were retrieved and used for the analysis, thus

representing about 89.3 percent.

In order to empirically ascertain the factors militating against automating permit acquisition and detection of unauthorized building processes in the Sekondi-Takoradi Metropolis; and to give an understanding as to the extent to which each factor contribute to the problem in the metropolis, both by itself and in combination with the other factors or variables, the Relative Importance Index (RII) was employed. Relative Importance Index or weight is a type of relative importance analyses. It gives information regarding a variable's contribution to predictable variance; and this information is very useful when considering the practical utility of that particular variable to other related variables in a group (Cortina and Landis, 2009). Thus, RII was used for the analysis because it best fits the purpose of this study; and it aids in finding the contribution a particular variable makes to the prediction of a criterion variable both by itself and in combination with other predictor variables (Johnson and LeBreton, 2004). In calculating the Relative Importance Index (RII), the formula below was used (see Badu *et al.*, 2013):

$$RII = \frac{\sum W}{A * N}$$

Where, *W*: weighting given to each statement by the respondents and ranges from 1 to 5; *A* – Higher response integer (5), and *N* – total number of respondents. The results of the calculations are presented on **Table 2**.

The Sekondi-Takoradi Metropolis is situated at the south-eastern part of the Western Region. The Metropolis is adjoined westwards by the Ahanta West District, eastwards by the Shama District, southwards by the Atlantic Ocean and at the north by the Wassa East District. The Metropolis covers a land size of about 191.7 km² and Sekondi-Takoradi (the twin city) is the regional administrative capital. It worth emphasizing that, though the assembly is the smallest in terms of land size, the Sekondi-Takoradi Metropolis is the most urbanised among the 22 Assemblies in the Western Region of Ghana (Ghana Statistical Service, 2014). More so, the Assembly is governed by 72 Assembly members comprising of: 45 elected members, 22 government appointees and 5 elected members of parliament (whose constituencies are within the domain of the assembly) as ex-officio members (Ghana Statistical Service, 2014).

Results and Discussions

For a five-point response item, Relative Importance Index (RII) produces a value ranging from 0.2–1.0 (see Badu *et al.*, 2013). More so, the group index is the average of the relative importance index for the variables in the various groups (see Fugar and Agyakwah-Baah, 2010). The values: 0.797, 0.766, 0.755, 0.733, 0.693, 0.683, 0.655 and 0.642 respectively represents the average RII values for Political, Educational, Cultural, Social, Administrative, Economical, Legislative and Technological barriers to automating permit acquisition and detection of unauthorized building processes in the metropolis as shown in **Table 2**. Similarly, the distribution on **Table 2** indicate that, all the variables are barriers to automating permit acquisition and detection of unauthorized buildings in the Sekondi-Takoradi Metropolis with those variable with RII value below 0.7 being moderately influential barriers (see Badu *et al.*, 2013). A critical look at the respective RII values suggest that, relatively, Political barriers are the key factors militating against automating permit acquisition and detection of unauthorized building processes in the metropolis, with technological barriers being the least contributors to the phenomena. Under the political barriers the most critical barrier was *lack of political will to initiate and sustain automated services in the public sector*. This variable had RII value of 0.806, thus, being the leading contributing variable under political barriers. This support the assertion by Mehrrens *et al.* (2001), that automating services are constrained by lack of political will to initiate and sustain such services. This suggests that, the metropolitan assembly in its attempt to automate public services must first of all see to it that it mounts up several appealing strategies that will be convincing to the ruling government to win his support.

More so, according to Fulantelli and Allegra (2003), another critical barrier to automation is to convince authorities to come to the acceptance of the worth of automating services; that, it offers better return on investment by enhancing service delivery. Affirmatively, the result from **Table 2** showed that, under the educational barriers, *Ignorance on the worth of automated service and return on investment*, with RII value of 0.788 has been the most critical educational barrier militating against automating permit acquisition and detection of unauthorized building processes in the Metropolis. This was followed by *lack of knowledge on automated service by management* which had RII value of 0.743. The implication is that the Assembly, when addressing the educational barriers ought to give much attention to the barrier, *Ignorance on the worth of automated service and return on investment*, and must go the extra mile to educate management on the value of automated service.

Similarly, under cultural barriers, *multi-lingual deficiencies of automated service platforms* was ranked the leading critical variable having a RII value of 0.830. This supports the assertion by Vassilakis *et al.* (2005) that, for automated service to serve the need of the target group, it must be multi-lingual and not serving the need of only the most spoken language. Thus, the assembly when automating their services must do wide consultation on the diverse spoken language in the metropolis to make it user friendly to the target group.

Furthermore, Olson and Lucas (1982) and Yew (2010) asserted that, employees may oppose automated services because it alters administrative procedure in a working environment; that is, it brings about activity or job

re-orientation which may cause some workers to lose their jobs. Consequently, under social barriers, *fear of job loss* relatively contributed more to the phenomena, with RII value 0.803, than the other social variables. This implies that, the assembly should adequately address the *fear of job loss* among workers in the assembly as it has a higher tendency to derail any attempt to automate public service in the metropolis. More so, according to Olson and Lucas (1982), automated services do not only alter the administrative procedure in a working environment to make it more efficient, but it changes the concept of administration itself leading to organizational reform thus, workers are likely to resist this intervention. Consequently, *resistance to organizational reform* relatively contributed most with RII value of 0.743 under Administrative barriers. This was followed by *lack of knowledgeable and skilled staffs*; and *readiness and cooperation of external department* with RII values 0.669 and 0.666 respectively. This suggests that, authorities could best address the administrative barriers by tackling *resistance to organizational reform* among workers as it is the leading administrative barrier to automating permit acquisition and detection of unauthorized building processes in the metropolis.

According to Duan *et al.* (2002) and Vassilakis *et al.* (2005), the costs associated with the hardware platforms, the software development and licensing are critical barriers to automating services. Consequently, this research revealed that *cost of software development and licensing*, with RII value of 0.699 was the leading contributing economic barrier militating against automating permit acquisition and detection of unauthorized building processes in the Sekondi-Takoradi Metropolis. This suggest that, before the assembly venture into automating its services it must, first of all, assess its financial strength if it can afford the cost of developing and licensing a suitable software to support its operations.

Again, according to Industry Advisory Council E Government Shared Interest Group (2002) and Vassilakis *et al.* (2005), for automated services where multiple parties are involved, multiple changes in legislation, systems and processes would be required. In confirmation to this assertion, this study revealed that, *the need for modification of legislation where multiple institutions are involved* is the top most legislative barrier to automating permit acquisition and detection of unauthorized building processes in the Sekondi-Takoradi Metropolis with RII value of 0.704. This was followed by *Inadequate or lack of existing suitable legal framework backing automation of permit acquisition and detection of unauthorized building processes* with RII value of 0.606. Thus, *the need for modification of legislation where multiple institutions are involved* relatively contributed most to barring automating services; hence, the Assembly ought to address this legislative barriers first before tackling other legislative barriers.

According to Sin Tan *et al.* (2010), ineffective integration of other external bodies or organizations bars automating services. As a result, this study confirmed this assertion as *ineffective integration of external bodies* contributed RII value of 0.675 under technological barriers militating against automating permit acquisition and detection of unauthorized building processes in the Sekondi-Takoradi Metropolis.

Thus from the forgone discussions of the results, in tackling barriers to automating permit acquisition and detection of unauthorized building processes in the metropolis, first priority should be given to *lack of political will to initiate and sustain automated services in the public sector; Ignorance on the worth of automated service and return on investment; multi-lingual deficiencies of automated service platforms; fear of job loss; resistance to organizational reform; cost of software development and licensing; the need for modification of legislation where multiple institutions are involved; and ineffective integration of external bodies* under Political, Educational, Cultural, Social, Administrative, Economical, Legislative and Technological barriers respectively as they contributed most to the problem than other variables.

Table 2. Barriers to automating permit acquisition and detection of unauthorized buildings in the Sekondi-Takoradi Metropolis

BARRIERS(VARIABLES)	1	2	3	4	5	W	RII	Rank
Legislative							0,655	7
Inadequate or lack of existing suitable legal framework backing automation of permit acquisition and detection of unauthorized building processes	11	18	2	30	6	203	0,606	
the need for modification of legislation where multiple institutions are involved	4	14	1	39	9	236	0,704	
Economic							0,683	6
cost of software development and licensing	4	12	4	41	6	234	0,699	
turnover of technical staff	6	12	5	42	2	223	0,666	
cost of hiring employee(s) for electronic service administration	5	15	2	37	8	229	0,684	
Administrative							0,693	5
resistance to organizational reform	5	6	1	46	9	249	0,743	
lack of knowledgeable and skilled staffs	3	18	6	33	7	224	0,669	
readiness and cooperation of external department	6	14	5	36	6	223	0,666	
Technological							0,642	8
ineffective integration of external bodies	6	17	3	28	13	226	0,675	
lack of online payment processes	14	15	1	28	9	204	0,609	
Educational							0,766	2
Ignorance on the worth of automated service and return on investment	2	2	12	33	18	264	0,788	
lack of knowledge on automated service by management	4	2	11	42	8	249	0,743	
Political							0,797	1
lack of political will to initiate and sustain automated services in the public sector	3	4	2	37	21	270	0,806	
State owned monopolies to issuance of permit and detection of unauthorized buildings	4	4	3	37	19	264	0,788	
Social							0,733	4
erratic power supply	7	14	5	27	14	228	0,681	
unreliable internet service	4	12	4	35	12	240	0,716	
fear of job loss	2	2	3	46	14	269	0,803	
Cultural							0,755	3
negative attitude and belief about automated services	8	14	2	29	14	228	0,681	
multi-lingual deficiencies of automated service platforms	1	2	1	45	18	278	0,830	

Conclusions and Recommendations

The study revealed that Political, Educational, Cultural, Social, Administrative, Economical, Legislative and Technological barriers militate against automating permit acquisition and detection of unauthorized building processes in the Sekondi-Takoradi Metropolis; with political barriers contributing most to the phenomena while technological barriers were relatively the least contributors to the barriers.

More so, *lack of political will to initiate and sustain automated services in the public sector; Ignorance on the worth of automated service and return on investment; multi-lingual deficiencies of automated service platforms; fear of job loss; resistance to organizational reform; cost of software development and licensing; the need for modification of legislation where multiple institutions are involved; and ineffective integration of external bodies* were very influential variables barring automating permit acquisition and detection of unauthorized building processes under Political, Educational, Cultural, Social, Administrative, Economical, Legislative and Technological barriers respectively. Thus, they ought to be tackled first when addressing barriers to automating permit acquisition and detection of unauthorized building processes in the Sekondi-Takoradi Metropolis.

This study therefore recommends that, there should be wider consultation in developing an automated system that will be multi-lingua and that will be accessible to the target populace. More so, workers in the Assembly should be educated on the organizational reforms associated with automating permit acquisition and detection of unauthorized buildings in the metropolis. The introduction of automating services should be done cautiously. Redundant staffs could be transferred to other departments where their services would be needed or be given training relevant to the new working environment to integrate them into the automated environment;

alternatively, they could be adequately compensated and laid-off. Again, the Assembly should devise strategies to effectively integrate external departments such as the Lands Commission, Environmental Protection Agency (EPA) and Ghana National Fire Service (GNFS) onto their automated platform so that relevant data from such departments could be easily accessed in automated permit acquisition and detection of unauthorized building systems. Similarly, regulations governing the operations of the Assembly as well as other external relevant bodies ought to be amended to give legal recognition and backing to automation services.

It is hoped that the findings of this paper will be found informative to opinion leaders, stake-holders as well as authorities in the metropolis, with regards to the relative importance of the variables barring automating permit acquisition and detection of unauthorized building processes in the Sekondi-Takoradi Metropolis, as well as making them more proactive and strategic in priority in dealing with the barriers in the midst of several internal and external environmental challenges.

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