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Assessment of the Technical Preparedness of County Governments of Kenya in the Adoption of E-Procurement: A Case of Garissa County

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Abstract
The emergence of the internet has provided a platform that is enabling a new generation of business. It is changing the way business is done in every industry. The World Wide Web has become a source for information, goods and services. In effect, this has led to emergence of software systems. These systems are important because they provide information needed by organizations to be more effective, efficient and accurate as well as save on time and cost. The application of this systems range from allowing organizations to keep track of records and trends among others. Public Procurement and Disposal Act 2005 that saw the creation of Public Procurement Oversight Authority which bore the e-government strategy paper 2004.e - procurement was one of the medium term objectives which was to be implemented by June 2007. The government has however dragged the implementation largely due to the new political dispensation. E-procurement systems have proven benefits and its implementation is in line with the current times, the digital era. It was thus in order to establish preparedness of the county government created in the new dispensation. A survey research design was employed in this study. Procurement staff in Garissa County was the target population in this study. A research questionnaire was used for data collection .Both quantitative and qualitative methods of data analysis were used in this study. Data analysis was facilitated by Statistical Package for Social Sciences (SPSS) program version 20. The findings indicated that the county governments are prepared to adopt e-procurement. Given the age of the workforce which is young and dynamic and the availability of IT infrastructure, the adoption of e-procurement is likely going to be a success.

Key words: eProcurement, Information and Communication Technology and Devolution,

Introduction

Procurement, in any organization accounts for substantial portion of firm's resources and time In the wake of the competitive environment nowadays, it is important for every organization to maintain an effective and efficient procurement to cut procuring materials and services at the right price, quality and time. For a long time, organizations, both private and public, have used

paper work to carry out the procurement process. This paper work involves generation, copying and transfer of many paper documents.

The emergence of the internet has provided a platform that is enabling a new generation of business. It is changing the way business is done in every industry. The World Wide Web has become a source for information, goods and services. In effect, this has led to emergence of software systems. These systems are important because they provide information needed by organizations to be more effective, efficient and accurate as well as save on time and cost. The application of this systems range from allowing organizations to keep track of records and trends among others.

In particular, E-procurement has emerged as one of the most discussed platforms in material procurement. In very basic terms, it can be defined as the application of Internet technology in material and service procurement. It involves the use of various forms of IT to automate and streamline the procurement process, improving efficiency and transparency, thereby reducing the cost of operation within and between businesses. Government institutions are struggling to adopt ICT in their procurement functions despite proven benefits.

E-procurement is becoming more popular because of the sensitivity of jobs that it can. In any organization, procurement is the hot spot for corruption and inefficiencies. Its ability in improving efficiency and transparency is making it popular but also a system that the governments want to embrace in line with their procurement policies.

Devolved government

Kenya enacted a new constitution in 2010 which provided for the establishment of 47 county governments. Each County will have a government consisting of a County Assembly and a County Executive. The main objectives of devolved government include, among others, to Promote participation of people in making decisions on issues that affect them at local levels

According to the provisions as enacted, the County governments shall be allocated not less than 15% of all revenue collected by the national government. Marginalized areas will received an additional 0.5% of all the revenue collected by the national government

However, there are fears of devolving wastage and largesse in the county governments, which governors should nip in the bud by developing appropriate systems.

Ministries also have to determine how the two levels of government will work together for effective implementation of devolution.. In view of the fact that devolution is new, it is necessary to establish new structures especially at the county government level. Procurement is part and parcel of these structuring and therefore the need for planning, which in this case has to be in line with the procurement act already in place

Problem Statement

Public Procurement and Disposal Act 2005 that saw the creation of Public Procurement Oversight Authority which bore the e-government strategy paper 2004.e -procurement was one of the medium term objectives which was to be implemented by June 2007. The government has however dragged the implementation largely due to the new political dispensation .According to government sources, there are plans to implement it at county level. This is in line

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with the new constitution (Article 226), and the Public Finance Management (PFM) Act 2012 (Article 12). The system will be anchored on the integrated financial management system-IFMIS which is an Oracle based Enterprise Resource Planning (ERP) Software. Enterprise Resources Planning (ERP) applications or ERPs, are large-scale computer software and hardware systems that attempt to integrate all data and processes of an organization into a unified system housed in a centralized database which is accessed through a secure network.

E-procurement systems have proven benefits and its implementation is in line with the current times, the digital era. It doesn't matter how long it takes given that the private sector is adopting it. Many organizations especially within the developing economies have not effectively embraced the practice. In Kenya a wide range of organizations are struggling to adopt information and communication technology in their procurement functions despite proven benefits which include enhancing transparency and shortening tender process. The country, due to loopholes in the procurement process has lost money immensely through corruption in the procurement department. Notably, the Audit general has pointed out major mishap in the manner in which procurement has been done at these counties prompting the impeachment of a county governor in February 2014. This could just be a tip of the iceberg given that the devolved system is still at its infancy. Therefore the question at hand is whether the implementation of e-procurement which if well done can solve the seal procurement loopholes is on course. This effectively points at the preparedness to embrace technology. This preparedness is three fold, environmental, technological and organizational. Notably, the county government act states that locals will be given precedence in employment and thus effectively locking out experts from "other counties" given this scenario and completely new way of governance, how prepared are the counties? No study so far has been done with regard to the preparedness of the counties the current impulse in the procurement procedures at the counties notwithstanding.

This study sought to assess the technical preparedness of the counties in the adoption of e-procurement and shall focus on Garissa county.

Objectives

This study was to assess the preparedness of the county governments for the Adoption of e-procurement in the devolved system of governance in Kenya Conclusions and recommendations were documented and disseminated for future use by road construction contractors, regulatory bodies and government agencies.

Literature Review

Literature review gives an overview and synthesizes previous studies (Ngechu, 2006). A review of theoretical and analytical literature and gaps to be filled by the study is provided in this chapter.

Theoretical and Conceptual Framework

A review of adoption literature shows the following important models that are widely used in the discussion about (IT) adoption: the Theory of Reasoned Action (TRA) (Fishbein & Ajzen 1975), the Theory of Planned Behavior (TPB) (Ajzen 1991), the Technology Acceptance Model (TAM) (Davis 1989).

According to (Kholoud Al-Qeisi, 2009), the Theory of Reasoned Action (TRA) was the first model used to explain acceptance of technology. It was based on the assumption that individuals are rational and will make systematic use of the information available to them to take action. It is basically biased towards ones behavior.

Diffusion of innovation (DOI) theory(Everett M. Rogers, 2003), on its part states that individuals have different degrees of willingness to adopt innovations and thus it is generally observed that the portion of the population adopting an innovation is approximately normally distributed over time. This theory provides well developed concepts and a large body of empirical results applicable to the study of technology evaluation, adoption and implementation, as well as tools, both quantitative and qualitative, for assessing the likely rate of diffusion of a technology, and identifies numerous factors that facilitate or hinder technology adoption and implementation (Robert Fichman, 1992). (Elena Karahanna & Detmar Straub, 1999) argued that the theory does not provide evidence on how attitude evolves into accept/reject decisions and how innovation characteristics fit into this process this was affirmed by (Chen, Gillenson, & Sherrell, 2002).

Technology Acceptance Model (TAM), as introduced by (F. Davis, 1989) explains an individuals' acceptance of information technology from TRA. Technology Acceptance Model (TAM) has been the only one which captures the most attention of information systems community. According to (Taylor & Todd, 1995) and (Venkatesh & Davis, 2000), TAM has been extensively used as the foundation for various empirical studies of user technology acceptance and has in some measure added to the realization of users' acceptance of information systems (ICT) Davis et al. [10] proposed TAM to address why users accept or reject information technology. Their model is an adaptation of the theory of reasoned action proposed by Fishbein and Ajzen to explain and predict the behaviours of people in a specific situation.

A key purpose of TAM is to provide a basis for tracing the impact of external variables on internal beliefs, attitudes, and intentions. It suggests that perceived ease of use (PEOU) or rather degree to which a person believes that using a particular system would be without effort , and perceived usefulness (PU) in other words, the extent to which a person believes that using a particular system would improve his/her job performance are the two most important factors in explaining system use.

The greatest limitation of TRA is that it is only relevant to behavior that is consciously thought out beforehand, therefore Irrational decisions, habitual actions or any behavior that is not consciously considered cannot be explained by this theory.

Of these approaches, the TAM is the most widely cited explaining model for individual adoption.

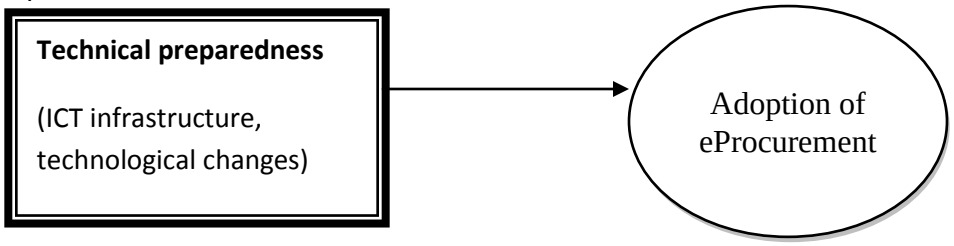

Figure 1Conceptual framework

E-procurement: types, use and benefits

E-Procurement is an Internet technology solution facilitating corporate buying using the Internet. Four major e-procurement Internet-based ICT tools are identified (Davila et al, 2003). First, e-procurement software refers to any internet-based software application (traditional EDI e-procurement systems have also migrated to Internet) that enables employees to purchase goods from approved electronic catalogues in accordance with company buying rules, and captures necessary purchasing data in the process. To achieve that, the software uses protocols to automatically route and move through the necessary approval processes all employees' purchase selections of a good found on a supplier catalogue. Internet market exchanges are called the e-procurement systems that bring together multiple buyers and sellers in one central virtual market space and enable them to buy/sell from each other at a dynamic price. Internet B2B auctions are the third type of e-procurement systems referring to events in which multiple buyers place bids to acquire goods/services at an Internet site, e.g. hospitalitysupplies.com. Last, Internet purchasing consortia gather the purchasing power of many buyers to negotiate more aggressively discounts, e.g. yassas.com aggregates demand of Greek hospitality operators, while avendra.com aggregates demand of hotel properties affiliated mainly with three major hotel chains. Within the context of the plastics industry, Boyle & Alwitt (1999) found that the most often cited procurement use of the Internet was for consummating the transaction and the acquisition of technical advice. However, Roth (2001) recently revealed that top performers conduct more than 20% of their e-procurement transactions online, while they use the Internet for several e-procurement applications such as communicating with vendors, checking vendor price quotes and purchasing from vendors' catalogues. The Internet has also enabled companies to set early warning damage systems, provide information on warranty agreements and assist in vendor negotiation. Future developments of e-procurement systems envisage the enablement of streamlined and seamless supply chains whereby networks of suppliers, manufacturers and retailers would share information for developing collaborative competitive practices such as Collaborative Forecasting, Planning and Replenishment (CFPR) (Folinas et al., 2004). E-procurement can transform the whole purchasing process, as it pervades all the major components of the purchasing process such as: definition of product design/ requirements; production scheduling; suppliers' search/selection; negotiation/ contracting agreements/transactions; supplier evaluation; SCM and collaboration (Lancioni et al. 2003). E-procurement's benefits are widely found in the SCM and e-procurement literature and they are so great, that e-procurement has turned the formerly ignored traditional procurement function into a competitive weapon. Buyers indicated that the conversion from paper-based to e-purchasing resulted in a reduction of 5% to 10% on purchasing price, 25% to 50% reduction at inventory level, a 5-day reduction in cycle time, a US$77 saving in per requisition administrative cost (Brack, 2000). Major eprocurement benefits include (Min & Galle, 2003; Roth, 2001):

- Cost savings and subsequent increase in return-on-investment (ROI) resulting from reduced paper transactions, shorter order cycle time and the subsequent inventory reduction due to the speedy transmission of order related information;
- Just-in-Time inventory and procurement practices; enhancement of supply chain efficiency by providing real-time data regarding product availability, inventory level, shipment status, production requirements;

- Facilitation of collaborative planning among supply chain partners by sharing data on demand forecasts and production schedules that dictate supply chain activities;
- Effective linkage of customer demand information to upstream SCM functions, while also facilitating "pull" (demand-driven) SCM operations.

Technological factors

The Kenya Vision 2030 considers infrastructure development as a key enabler of economic, social and political development of the nation (GOK, 2007) while admitting that the country lacks adequate ICT infrastructure (GOK, 2006). The country therefore set out to develop a robust infrastructure. This momentum in infrastructural development includes power, road, rail, air and water transport, Internet backbone across all towns and telecommunications installations among others. The availability of ICT infrastructure is key to accelerated run towards the achievement of an information society status (ITU-WTD, 2003). ICT plays a critical role in the success of e-government projects. It is argued that Arab countries must take actions to increase the penetration of e-government projects to reach the objectives of the Arab world (Ibraheem, 2008).

Technology is an adoption driver, encapsulates IT infrastructure, information security risks and rapid changes of technology. It is an important determinant of IS adoption. The adoption of new technologies can bring significant changes to the work practices of businesses and resistance to change is a normal organizational reaction. Therefore, it is important, that the changes are compatible with its infrastructure, values and beliefs. Rapid and revolutionary changes in technology have created an increasingly information-centric global economy, where knowledge has become a key factor in competitiveness. The challenge for many firms today is how to adopt an IT system that can withstand these rapid and evolutionary changes .Rapid changes in technology are defined as "changes that happen suddenly, and that it is difficult to predict how such a new technology would operate. IS innovations that have been seen to withstand the impact of rapid changes in technology in the industry in which a firm operates is more likely to be viewed in a favorable light. Further, According Kiula (2012) The job scale, the level of education, the length of time in public service and the age of the council staff were also found to have a significant linear relationship with ICT penetration and utilization.

Devolved system of Kenya

Devolution is generally defined as a process transfer of political, administrative and fiscal and management powers between central government and lower levels of government primarily operating at city and region levels (potter, 2001). The key economic rationales for decentralization are well articulated by Musgrave (1959) and Oates (1972). They argue that decentralization may improve governance in public service in public service by improving efficiency of resource allocation. Devolution may exercabate regional disparities in public spending and economic outcomes Calamai (2009).The highly centralized executive control of public affairs is seen by many as the genesis of country's governance and economic problems.
Below is a structure of the government of Kenya that reflects the devolved government.

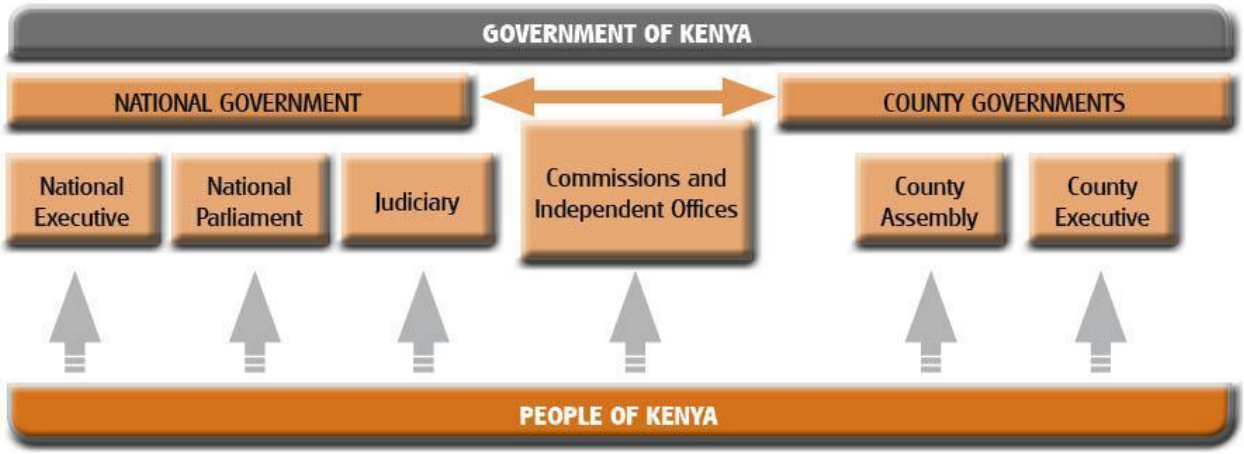

Figure 2: Structure of Government of Kenya

Source COK 2010

The CoK 2010 divides the country into a number of geographic units at the sub-national level. Article 6 (1) and Schedule 1 divide the territory of Kenya into 47 counties. A formal constitutional distribution of governance and development functions of each level of government must has been clearly delineated ensuring some autonomy for each. In the assignment of functions, the principles of subsidiarity, transferability of functions and the three categories of functions; namely, the exclusive, concurrent and residual functions are observed. Article 186 and Schedule 4 of the CoK 2010 assign functions to the two levels of government.

According to COK 2010, important functions of County Governments

- Policy and legislation
- Establishment and management of county public service
- Preparing county plans
- Preparing Annual Budgets
- Delivery of public Services
- Entering into agreements, receiving grants and loans
- Citizen Participation
- Public Communication and Access to Information
- Civic Education
- Reporting on performance

Research Methodology

A descriptive study design was used to collect quantitative and qualitative data. The major purpose of descriptive research was description of the situation as it exists at present (Kothari, 2008). This study adopted descriptive research design which involved a field survey. This research adopted stratified random sampling. According to Bryman (2008), sampling is the

process of selecting a number of individuals for a study in such a way that the individual represents a larger group from which they are selected. It involved dividing the population into four significant strata based on management levels and non managerial employees. Mugenda & Mugenda, (2003), recommends that a sample size of more than 30 or at least 10% is usually appropriate for social sciences. The study took 30% of each of the strata population. Procurement staffs in Garissa County were the target population in this study.

Data was collected mainly by use of questionnaire method. Questionnaire had both open ended and closed questions. Drop and pick approach was adopted, where the questionnaire were dropped in the morning and collected later afternoon after completion. The collected data was captured in to the Statistical Package for Social Scientists (SPSS) software which helped in generating means and standard deviation to help in answering research objective. Inferential analysis was used. Inferential statistics deal with drawing conclusions and, in some cases, making predictions about the properties of a population based on information obtained from a sample (Woods, 2003). Thus, correlation analysis was used to show the relationship between the independent and dependent variables.

Findings and Discussions

Response rate

The research was conducted on a sample of 105 respondents from the middle, lower level and non-managerial employees in the organization to which questionnaires were administered. However, out of the issued questionnaires, 60 were returned duly filled in making a response rate of 57.14%, which was sufficient for statistical reporting. Mugenda and Mugenda (1999) stated that a response rate of 50% and above is a good response rate.

Distribution of Respondents by Age

In order to understand the respondents' age distribution, the respondents were asked to indicate the age category. The table below shows an analysis of staff age distribution.

Table 1: Age

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24 yrs	8	13.3	13.3	13.3
	25-34 yrs	37	61.7	61.7	75.0
	35-44 yrs	15	25.0	25.0	100.0
	Total	60	100.0	100.0	

As shown, majority of the workers fall under the 25-34 age bracket at 61.7% followed by age bracket 35-44 at 25% and lastly 18-24 at 13.3%. This findings indicate that majority of the workers at Garissa county are young and vibrant.

Designation in the organization

Table 2: Designation

	Frequency	**Percentage**
Top management	2	2.9
Middle level management	7	11.4
low level management	17	28.6
Non managerial staff	34	57.1
Total	**60**	**100**

From the findings, most of the respondents (34%) were non managerial staff, 17.% were low level management staff, and 11.4 % were Middle level management while 2.9% were in the Top management.

E- Procurement platform

The study in this area asked the respondents to state if there procurement operations were being run on the e-procurement platform. Below were the responses:

Table 3: E-procurement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	22	36.7	59.5	59.5
	No	15	25.0	40.5	100.0
	Total	37	61.7	100.0	
Missing	System	23	38.3		
Total		60	100.0		

36.7% of the respondents answered in the affirmative that there procurement was being done electronically. 25% thought otherwise while a big majority (38.3%) was not aware at all. This could imply that the manner in which procurement is done is not well understood by a big majority and probably that e-procurement is not embraced by majority.

Integration of e-procurement

This study sought to know how e-procurement was being implemented, whether centralized or decentralized.

Table 4: E-procurement intergration

Is the e-procurement system integrated as a standalone including financial with overall management control system within county

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	38	63.3	63.3	63.3
	No	22	36.7	36.7	100.0
	Total	60	100.0	100.0	

From the findings, it was clear that the e-procurement was integrated as a standalone according to 63.3% of the respondents. 36.7% felt otherwise.

Cross tabulation of levels of management and adoption of e-procurement

This study sought to know who in the management cadres understood how the e-procurement was implemented. A crosstabulation was done and below were the response:

Table 5: Crosstabulation

Level * Is the e-procurement system integrated as a standalone including financial with overall management control system within company Crosstabulation

Count				
		Is the e-procurement system integrated as a standalone including financial with overall management control system within county		
		Yes	No	Total
Level	Top management	2	0	2
	Middle level management	4	3	7
	Low level management	11	6	17
	Non-managerial staff	21	13	34
Total		38	22	60

From the findings, top management seemed to agree that e-procurement was fully adopted as an enterprise resource planning (ERP). For the middle level, 3 out of 4 agreed. However, the other cadres had a different view more of them disputing that. This could a pointer to lack of adequate involvement or simply low level preparedness by the staff at lower grades of job.

Technological preparedness and e-procurement adoption

The third objective was to assess the technological preparedness of the counties. In particular, infrastructure and the changes in technology were considered. The table below shows the responses:

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Table 6: Technological preparedness

	Mean	Std. dev
There is structured cabling/hot spots in all offices county government offices	**3.55**	**1.213**
There is an external optical fiber connection to internet point presence	**2.93**	**1.716**
There is a working intranet	**3.30**	**1.807**
The county government only purchases branded (HP, Dell, IBM) client and server machines	**3.86**	**1.386**
There is ICT personnel in place	**3.88**	**1.553**
There is telecommunication mechanics in place	**3.5**	**1.195**
There Are training opportunities available to ICT workforce	**3.25**	**1.282**
ICT workforce have at least an undergraduate Degree in ICT (information systems)	**3.38**	**1.302**
All networked computers use licensed anti-virus software	**3.5**	**1.604**
Computers are physically secured	**3.38**	**1.685**
There is data-back up	**3.57**	**1.134**
There is data security issue to process business dealings through e-procurement	**3.5**	**0.837**
E-procurement will provide opportunities for hackers to paralyze company operations.	**2.43**	**1.512**
There is Lack of faith in transaction and data integrity.	**2.00**	**1.00**
There will be problem integrating with existing systems.	**2.86**	**1.215**

The county will cope with dynamism of technology	**3.57**	**1.134**
There is a change management strategy in place	**3.29**	**1.38**
Overall, I am satisfied with ICT infrastructure and the county's ability to handle ICT changes	**4.14**	**0.9**

The respondents were asked to rate the statements provided on a likert scale. There was general positivity in all statements. The findings indicated that matters to do with data integrity and security were all being addressed. They further indicated that there was willingness to cope with dynamism in technology. Findings on age showed that there were a young and energetic working force in Gariassa and therefore the positivity regarding technological preparedness is no surprise. These findings are consisted with Kiula (2012) who found that the job scale, the level of education, the length of time in public service and the age of staff were found to have a significant linear relationship with ICT penetration and utilization.

Technological vs adoption of e-procurement

Table 7: Technological correlation

Correlations

		Adoption of e-procurement	Technological preparedness
Technological preparedness	Pearson Correlation	1	.89
	Sig. (2-tailed)		.748
	N	60	60
Adoption of e-procurement	Pearson Correlation	.89	1
	Sig. (2-tailed)	.748	
	N	60	60

Correlation analysis was done to test the strength of relation between technological preparedness and adoption of e-procurement. A correlation of 0.89 indicated that there was a very strong correlation between the two variables.

Conclusion and Recommendations

Conclusion

The findings indicated that matters to do with data integrity and security were all being addressed. They further indicated that there was willingness to cope with dynamism in technology. Findings on age showed that there were a young and energetic working force in Gariassa and therefore the positivity regarding technological preparedness is no surprise. There

was a very strong correlation between the technological preparedness and e-procurement adoption.

Recommendations

This study recommended that a more perfect integration of county and national governments on procurement matters. This would make the sharing of relevant information more effective.

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