



**INFLUENCE OF E-TENDERING PRACTICE ON SUPPLY CHAIN PERFORMANCE IN COUNTY GOVERNMENT OF KAKAMEGA**

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**ABSTRACT**

*The objective of this study was to establish the influence of e-tendering practices on supply chain performance in County Government of Kakamega. The study was guided contingency theory. The study employed a descriptive research design. The population of interest targeted all the 84 officers working in supply chain department, finance department and chief officers in the County government of Kakamega. Primary data was collected using structured questionnaires. Data was analysed using SPSS version 24 and findings were analysed to come up with results which were interpreted and presented in tables, mean and standard deviations. Regression analysis was done to test and analyse results to establish the relationship between the study independent and dependent variables. The study findings revealed that there is a significant positive relationship between e-tendering practices on supply chain performance. From the research findings the researcher concluded that e-tendering practices have a positive influence on supply chain performance in County Government of Kakamega. The study recommended that County Government executive and policy makers to invest on current technology and IFMIS in there, finance and supply chain activities and operations management since the research result showed a positive influence of e-tendering on supply chain performance.*

**Key Words:** E-tendering practices, Supply Chain Performance

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## INTRODUCTION

The Integrated Financial Management Information System is a financial system in one online platform system which plays major role in management of business firms, institutions and organizations. The different system and activities are known as modules in IFMIS it ranges from financial management, budgeting, auditing, suppliers procurement and general ledger management. The 21st Century has seen many developing countries embarking and embracing of new technology by automating and integrating their Public Finance Management systems to improve on management of their expenditure hence resulting to prudent, accountability and promoting integrity in public sector.

The Kenyan National Treasury in 2016 did a research on IFMIS implementations results revealed that will IFMIS had enhance fairness, equity, transparency ,improved supplier relations and accountability in the public procurement. Selfano, Sarah and Peninah (2014) established that proper IFMIS and centralization of procurement operation system and its operationalization in the national treasury will assist the public sector departments to ensure proper and efficient management of public finances by ensuring value for money is achieved, fair treatment of suppliers, proper documentations of contracts minimizing complaints, risk of fraud and corruption.

IFMIS is major executive driver requirement of much critical system in any public sector operations performance in Kenya (Taaliu, 2017). Traditionally, many public procurement, procedures and operations were done manual; this was deemed to lack transparency, value for money, accountability, fair competition, increased time consumption and increased paper work, (Matunga, Nyanamba, Okibo, 2013).

In Kenya, there are some public entities that have successfully embraced and adopted

implementations of new technology by using IFMIS technology. In private sector for instance nation media group through their digital platform known as N-Soko enables their clients to purchase their products in an online platform (Gitahi, 2011). Awino (2011) in his research study on how selected strategy variables affect organization"s performance.

Further, ICPAK (2017) reported that poor financial performance has been reported in public entities where IFMIS has not been adopted and implemented, there was evidence overspending, poor financial controls, unrealistic budgets, focus on inputs rather than outputs, increased pending bills, spending not aligned to priorities, fraud, poor management of records and documents, procurement issues increase in stock outs. In Kenya, just like other developing countries the world over, businesses are embracing modern technological applications and use of computerized systems and tools in ensuring that their business dealings and operations are made faster, convenient, easier, reliable, and 24/7hours of business operations beyond and against known business hours (Jesse, 2013).

The County Government of Kakamega is one (1) of the 47 Counties located in the western region of Kenya. Following the enactment and promulgation and implementation of the devolved functions of the Kenyan Constitution in 2010, the County was formed they are geographical units that the Constitution of Kenya envisaged as the units of devolved Government functions and revenue. Each County formed a one-unit Constituency for electing a representative to the Kenyan Senate and a special women"s representative to the National Assembly of Kenya and a Governor.

In the County Government of Kakamega IFMIS has been adopted in procurement and finance department currently payments of supplier"s and procurement and sourcing are done

electronically. Despite this full automation of procedure and activities Counties still report frequent breakdowns of the Integrated Financial Management and Information system which continued to hamper development County Governments (Ochieng, 2017).

### **Statement of the Problem**

Despite the devolvement of many Government functions to County Governments in Kenya's current state of the service delivery and procurement functions are facing a myriad of challenges which are attributed to delay funding from National Government (Korir, 2014). Further, earlier researchers and studies such as Rotich and Okello, (2015) indicated that costs hamper public procurement participation and operations in county resource management. Hawo (2015), in his study on the effect of (IFMIS) within the budgetary management of public sector, revealed that if proper systems that aid financial management are put in place, then positive results would be achieved.

Muigai (2012) in his study he found out that IFMIS is a major component of financial reforms that positively affect financial management in many public entities. The implementation of IFMIS has proven to be critical especially for the developing Countries and its success has been futile (Chene, 2009). According to study by Moseba (2012) and Aketch (2013) the Kenya Government required that all County Governments to adopt IFMIS as a management tool with an aim of improving the public sector financial management, which aims to realize the benefits and improve service delivery to its Citizens.

Chuma (2014) study on impact of IFMIS on financial management of public sector found that internal control, procurement, budgeting, and reporting systems play a vital role in financial management. Imbuye (2013) in his study on IFMIS adoption and implementation highlighted

the weaknesses and gaps within the System that was being used. He noted that the interfaces were not being used optimally. All these have led to the growing pending bills that are a threat to the economy. In addition, most Counties are being faced with massive misuse of public funds, lack of project implementation, over accrued bills has also been observed at the County level and all this have hindered service delivery. Also according to Karanja and Ng'ang'a, 2014 IFMIS implementation did not achieve its key objectives within the set time limits thus requiring it's re-engineering.

However, many Studies done in this area have not examined the effect of using technology in managing procurement operation e - sourcing practice e-tendering practice-ordering practice and e-supplier management on performance frontier of Government institutions and this implies that there is scanty knowledge on the effect of Integrated Financial Management and Information system in Kakamega County Government. The study therefore sought to establish the effects of e-tendering on supply chain performance in County government of Kakamega.

### **Research Objective**

The objective of the researcher in this study was to find out the influence of e-tendering on supply chain performance of County Government of Kakamega. The research was guided by the following research hypothesis;

- **H<sub>02</sub>:** E-tendering practice has no effect on supply chain performance in County Government of Kakamega.

### **LITERATURE REVIEW**

#### **Contingency Theory**

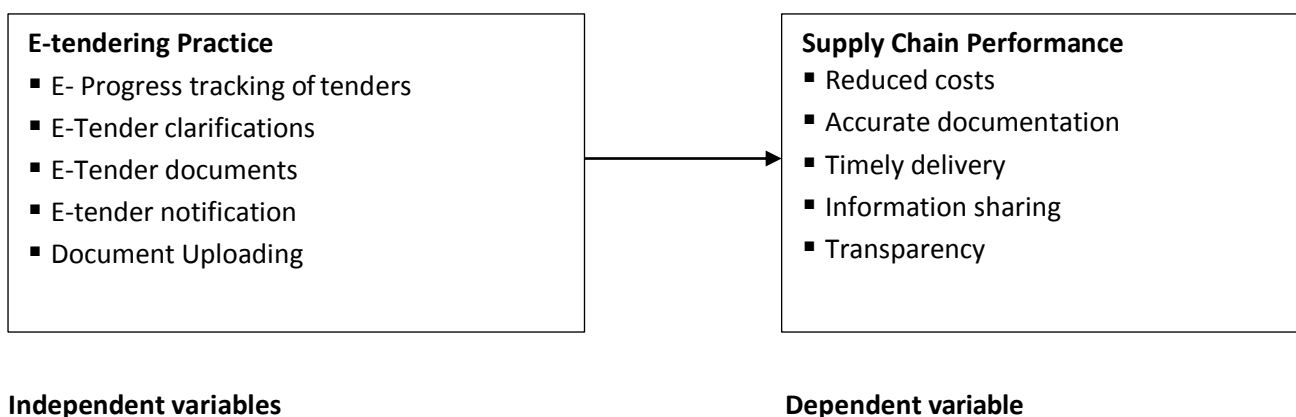
Contingency theory was put across by Woodward, (1985) that formulate a broad generalization about the formal structures that are associated with various technologies adaptations. The

Contingency Theory as described by Hersey and Blanchard (1969) revealed that there is no one definite strategy management which guarantees success of the strategy put in place by and organization. Management and firms are regarded as „open systems“ hence are affected by changes requiring different approaches to handle and solve emerging issues.

The contingency is a key tool in the recent past in identification, analysis and the evaluation of the factors that affect the design and adoption of information systems. The theory holds that, to operate and manage the systems it will require having the relevant resources and well-coordinated skills. Daft (1998) also revealed that each information system varies based on the firm specification, environment, needs, capacity and a system that may work in one organization may not necessarily work in another. As such the Contingency Theory is built on three main aspects; auditing information, financial information, and managerial information. Proper utilization of information from these three major sectors is what is to bring about the success of the IFMIS (Mungai, 2012). Thus this theory is relevant to the research study in that it postulates that not one thing is independent on itself as they depend on other elements so as to be effective and efficient. Hence for IFMIS to have a positive

impact on organizational performance, hence the organization ought to have appropriate strategic management plan in place in the supply chain unit.

From the theoretical model, supply chain performance management is linked to the contingency theory of leadership. Supply chain management core aim is to link each element and process of the manufacturing procurement and supply processes from need identifications raw materials acquisition, processing of goods and up to the delivery of the final product to end users of the product. It focuses on how organizations utilize their suppliers“ processes, procedure, policies and available resources technology capability to enhance competitive advantage (Skjøtt-Larsen et al., 2007). Many companies are now searching at securing and minimizing operations cost, quality, technology and other competitive advantages as strategic plan in their operations, there is need for expertise to pursue in a globally competitive environment and to achieve this many firms should be focused on their supply chain management functions. Supply chain management emphasizes on the overall and long-time benefit and of all parties in the supply chain line through coordination’s and implementations of information sharing (Yu et al., 2001).



**Figure 1: Conceptual Framework**

Electronic tendering is an online application system for processing that manages the purchasing cycle from the need identification, online tender advertisement to the issuing of award notifications. It provides a centralized electronic platform to help organizations improve efficiencies, fairness and accountability while reducing traditional tendering method and increasing supply chain performance (Chen, 2004).

In current dynamic market, marketing needs is always prime thing to achieve in almost all aspects of business core objectives of organizations.

To achieve high security measures in e-tendering practice, Public sector major Infrastructure must be implemented for a robust security system and the process to provide secure web based computerized procurement portal for all procurement user requirements. It also uses asymmetric encryption/decryption technique to offer high shielded secured environment, (Malik, 2013).

According to Fasli, (2007) e-tendering practice is a process of carrying out the entire procurement cycle on internet including submission of price bid such that efficiency, economy, speed of the internet can be harnessed. E-tendering practice is a process of transmitting requests electronically by use of internet to execute procurement operations (Fasli, 2007). In this study e- tendering practice is taken to include; e-notices, e-notification, e-selection, and e-awarding to request for information and response for prices to suppliers and receiving back their feedback (Davilla & Gupta, 2012).

Supply chain performance provides the basis for an organization to assess how well it is progressing towards its predetermined objectives, identifies areas of strengths and weaknesses and decides on future initiatives with the goals (Van Weele, 2016).Supply chain performance is the outcome realized in customer satisfaction and cost saving on the supply chain

by the use of electronic procurement process to automate functions including; e-sourcing practice, e-tendering practice, e-ordering practice and e-payments (Chesang, 2013; Uddin, 2015; Muraya,2016). IFMIS help in cutting down numerous supply chain operational costs and also contributing to customer satisfaction through enhancing a good organization-supplier relations management. According to Shakir et al (2007), every part of an organization supply chain performance contributes to final customer satisfaction and reduction in cost by satisfying its own internal customers. This entails that whatever that effects on supply chain performance brought about by IFMIS such as customer satisfaction and cost reduction on procurement department will inevitably affect other departments because they rely on procurement to bring in materials at the right time, place, price, and quality and from the right source which are used to produce goods for the end user. (Olhager & Selldin, 2011).

#### **Empirical Review**

Various studies having been conducted both internationally and locally on IFMIS and supply chain performance. Nyabuto (2009) undertook a Survey of the Extent of Implementation of Integrated Financial Management Information System as a tool for sustainable financial management in Government. The study revealed that there was some resistance in the Ministries for the use of IFMIS. Kakwezi and Nyeko (2010) conducted a study on procurement procedures and supply chain performance: Efficiency and effectiveness of the supply chain function in Uganda and found out that other than financial measures, non-financial measures also contribute significantly to supply chain process and performance. Kimwele, (2011) conducted a study on the factors that have hindered effective implementation and adaption of the Integrated Financial Management Information System in Kenya public sector.

Spriano (2013) carried out a study on the

successes and failures of e-Government projects in Developing Countries: a case study of Zambia. The results of the study indicted a rating score of 55.1 based on Heeks 100-point scale implying a mighty fail totally or partially. In addition, the awareness of the e-government projects was found to be inadequate. Mbae, (2014) investigated the impact of public procurement law on the performance of Machakos County Government. The study established that political forces, unethical practices, lack of transparency and accountability and dishonesty among procurement officers have affected procurement processes.

Mauki, (2014) factors influencing Implementation of Public Procurement and Disposal Act in Kenyan Judiciary from regions perspective. The findings revealed that accountability, ICT adoption, stakeholders' ethics and staff competence influenced implementation of Public Procurement and disposal Act at Kenyan Judiciary. Karani, (2014) investigated procurement methods and supply chain performance amongst state corporations under the National Treasury of Kenya and found that procurements methods affected supply chain performance of state corporations.

## METHODOLOGY

This research was conducted using a descriptive survey design. The population comprised of the County Government of Kakamega staff who were using IFMIS in their day to day operations. The study targeted twenty (25) procurement officers, forty-five (45) accountants, twelve (14) Chief Officers in charge of different departments. The selected officers are involved in daily running of the County's financial activities and therefore provided appropriate information regarding Information Communication and Technology adoption needed in the study. The study collected primary data by using of a structured Questionnaire. The questionnaire was used since it was easy to administer and with data obtained it could be easy to analyze, (Mugenda & Mugenda, 2003). The questionnaires were analysed by use of SPSS version 24.

## FINDINGS

### E-tendering practice on supply chain performance

The respondents were asked to indicate the extent of agreement with E-tendering practices statements from strongly disagree to strongly agree. The pertinent results were presented in Table 1.

**Table 1: E-tendering practice**

E-tendering practice	5	4	3	2	1	Mean	S.D
E-tendering practice aides e- progress tracking of tenders	3.1 (2)	1.5 (1)	12.3 (9)	35.4 (28)	47.7 (36)	4.23	0.95
By use e-tendering practice system all users are able clarify all the e-tendering practice procedures	0.0 (0)	23.1 (18)	0.00 (0)	33.8 (26)	43.0 (32)	2.68	1.16
E-tendering practice aides advertisement, submission, Opening and evaluation of tenders documents online	0.0 (0)	6.2 (5)	7.7 (6)	29.2 (22)	56.9 (43)	4.32	0.97
E-tendering practice enables bidders to get both award and regret notification online	4.6 (3)	4.6 (3)	7.7 (6)	30.8 (24)	52.3 (40)	4.26	0.96
Tender documents are Downloaded and uploaded Electronically through the IFMIS system	3.1 (2)	1.5 (1)	12.3 (9)	35.4 (28)	47.7 (36)	4.23	0.95
<b>Overall</b>						<b>3.87</b>	<b>1.00</b>

From Table 1, 36(47.7%) of the respondents strongly agreed that E-tendering practice aids e-progress tracking of tenders. while 28(35.4%) agreed on the same. A mean of 4.23 and standard deviation of 0.95 suggested that there is a great deviation from the mean. In regard to whether using e-tendering practice system all users are able to clarify all the e-tendering practice procedures. From the findings none strongly disagreed, 18(23.1%) disagreed, none was neutral, 26(33.8%) agreed and 32(43.0%) strongly agreed.

Majority of the respondents 58(76.8%) agreed that using e-tendering practice system all users are able clarify all the e-tendering practice procedures. A mean of 2.68 and standard deviation of

1.16 implied that there is great dispersion from the mean. The results also revealed that 24 (29.2%) and 40(56.9%) of the respondents agreed and strongly agreed respectively that E- tendering practice facilitates advertisement, submission, opening and evaluation of tenders documents online with a mean of 4.32 and standard deviation of 0.97. This implies that there is great deviation from mean. Majority of the respondents 65(86.1%) agreed that when E-tendering practice aides advertisement, submission, opening and evaluation of tenders documents online.

The findings also showed that 30.8% of the respondents agreed that E-tendering practice enables bidders to get both award and regret notification online and additional 52.3% strongly agreed. A mean of 4.26 and standard deviation of 0.96 implied that there is some deviation from the mean. From the findings, 47.7% of the

respondents strongly agreed that tender documents are downloaded and uploaded while 35.4% agreed on the same. A mean of 4.23 and standard deviation of 0.95 suggested that there is a great deviation from the mean.

This concurs the study of Rotich, Muma and Waruguru (2015) in the study, on Relationship Between E-tendering practice and Procurement Performance among County Governments in Kenya, results found that e-tendering practice positively affect the performance of supply chain unit of County Governments in Kenya.

### **Correlation between E-tendering practices on supply chain performance**

The Pearson correlation analysis was used to analysis the relationship between E-tendering practices on supply chain performance. In investigating the influence E-tendering practice on supply chain performance, the study results was a coefficient of correlation (r) as 0.567\*\*,  $P < 0.01$ . This showed that there exists a significant influence relationship between E-tendering practice on supply chain performance. These implied that the supply chain performance increase or decrease with an increase or decrease in a unit of E-tendering practices at any given time.

### **Regression Results of E-tendering practices and Supply chain performance**

Regression analysis was used to establish the amount of variance accounted for by change in one variable in predicting another variable. Regression analysis was conducted to find the proportion in the dependent variable which can be predicted from the independent variable (E-tendering practices) Table 2 showed the analysis results.

**Table 2: Regression Results of E-tendering practice and supply chain performance**

<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.567 <sup>a</sup>	.321	.310	.51538

a. Predictors: (Constant), E-tendering practice



**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.917	1	7.917	29.804	.000 <sup>b</sup>
	Residual	16.734	75	.266		
	Total	24.761	76			

a. Dependent Variable: Supply chain performance

b. Predictors: (Constant), E-tendering practices

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.177	.353		6.160	.000
	E-tendering practices	.484	.089	.567	5.459	.000

a. Dependent Variable: Supply chain performance

The results revealed a coefficient of determination ( $r^2$ ) of 0.321 meaning E-tendering practices can influence and explain up to 32.1% of the variance of any unit in supply chain performance. The F test gave a value of  $F(1, 76) = 29.804$ ,  $P < 0.01$ , which supports the goodness of slope fit of the model in explaining the variation in the dependent variable. It also meant that E-tendering practices are a useful determinant of supply chain performance. The unstandardized regression coefficient (B) value of E-tendering practices was 0.484,  $p < .001$ . This indicated that a unit change in E-tendering practices would result to change in supply chain performance by 0.484 significantly. The regression equation estimating the supply chain performance as a result of E-

tendering practices was as below:

$$\text{Supply chain performance} = 2.177 + 0.484X_2$$

From the results, E-tendering practices had significant positive influence on supply chain performance with  $P < 0.01$  and it significantly accounted 32.1% variance in supply chain performance. Therefore, the second null hypothesis was rejected as E-tendering practices have significant effect on supply chain performance.

**Supply chain performance**

Respondents were asked to give their understanding on various statements on supply chain performance. The pertinent results were presented in Table 3.

**Table 3: Pertinent Results on Supply chain performance**

Supply chain performance	5	4	3	2	1	Mean	S.D
IFMIS reduces costs through improved process efficiencies	6.2 (5)	4.6 (3)	10.8 (8)	36.9 (28)	41.5 (32)	4.03	1.13
IFMIS highly enhances documentation accuracy	4.6 (3)	4.6 (3)	12.3 (10)	38.5 (29)	40 (31)	4.05	1.07
There is timely delivery of both information and documents through the IFMIS	4.6 (3)	9.2 (7)	9.2 (7)	44.6 (34)	32.3 (25)	3.91	1.10
IFMIS aides timely information sharing to the intended system users	1.5 (1)	3.1 (2)	13.8 (10)	53.8 (42)	27.7 (21)	4.03	0.83
IFMIS ensures transparency between throughout the supply chain process	6.2 (5)	4.6 (3)	10.8 (8)	36.9 (28)	41.5 (32)	4.03	1.13
<b>Overall</b>						<b>4.01</b>	<b>1.05</b>

From Table 3, 28(36.9%) of the sampled

respondents agreed that IFMIS reduces costs

through improved process efficiencies while 32(41.5%) strongly agreed with a mean of 4.03 and standard deviation of 1.13 implying that there is great deviation from the mean. Majority of the respondents agreed 60(78.4%) that IFMIS reduces costs through improved process efficiencies.

Further, 29(38.5%) of the respondents agreed that IFMIS highly enhances documentation accuracy while 31(40.0%) strongly agreed on the same with a mean of 4.05 and standard deviation of 1.07. Majority of the respondents 78.5% IFMIS highly enhances documentation accuracy.

There is timely delivery of both information and documents through the IFMIS as revealed by 34(44.6%) of the respondents who agreed and 25(32.3%) who strongly agreed with a mean of 3.91 and standard deviation of 1.10. Majority of the respondents 59 (76.9%) agreed that There is timely delivery of both information and documents by use of IFMIS.

The result also revealed that 42 (53.8%) of the respondents agreed that IFMIS aides timely information sending sharing to the intended system users and 21 (27.7%) of the respondents strongly agree with a mean of 4.03 and standard deviation of 0.83. Majority of the respondents 81.5% agreed that IFMIS aide"s timely information sending and sharing to the intended online system users.

The researcher also found that 28(36.9%) of the respondents agreed that IFMIS has ensures transparency between and throughout the supply chain process and operations while 32(41.5%) strongly agreed with a mean of 4.03 and standard deviation of 1.13 implying that there is great deviation from the mean. Majority of the respondents agreed 60(78.4%) that IFMIS ensures transparency between throughout the supply chain process and procedures.

## CONCLUSIONS AND RECOMMENDATIONS

The study's objective was to find out the effect of

E-tendering practices on the supply chain performance. The Pearson correlation analysis was used to estimate the relationship between E-tendering practices and supply chain performance. In analyzing the influence of E-tendering practices on the supply chain performance, the study revealed a coefficient of correlation ( $r$ ) as 0.567\*\*,  $P < 0.01$ . The least beta coefficient was 0.258, which is coefficient value for E-tendering practices. This values were significant ( $B = .258$ ,  $p = .017$ ). This meant that E-tendering practices is a strong determinant in explaining the supply chain performance variables, when the variance explained by all other variables in the model is controlled. This implied that a unit change in E-tendering practices would result to change in supply chain performance by 0.258 in the same direction. Therefore, the hypothesis was rejected since  $\beta_2 \neq 0$  and  $P$  value  $< 0.05$  influencing supply chain performance.

The study concluded that E-Tender award, E-auction, E-Tender documents, E-tender notification- Requisition E-invoice reception affect supply chain performance in County Government of Kakamega.

The findings of this study establish that IFMIS affect supply chain performance in County Government of Kakamega. Therefore, from the study, it was concluded that E-tendering practices have an effect on supply chain performance and hence officers in charge of finance and supply chain function in County Government of Kakamega should always ensure that proper allocation of resources to increase automation and adoption of IFMIS in the county to ensure efficient supply chain performance.

Based on the study findings the following recommendations are made, the study recommended that there is need for other all procurement in county government to adapt this modern technology and ensure use of IFMIS to increasing their supply chain performance. The study further recommended that Policies and

legislation to be enacted to enhance implementation and management of IFMIS.

#### Areas for Further Research

This study sought to establish find out the influence of e-tendering on supply chain performance in County Government of Kakamega. The study was limited to County Government of Kakamega hence limited in its generalization of the findings; there is need for further studies of the same to consider other

counties in Kenya for the sake of generalizing the results of the study. Further studies could be undertaken on national governments departments in Kenya. This research study included e-tendering variable, there could be some other relevant factors that may be perceived as important, but those were excluded from this study. Future researches, therefore, may consider more factors like adaptation to change and government policies.

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