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CONTINGENCY FACTORS AND MANAGEMENT ACCOUNTING PRACTICES OF LISTED MANUFACTURING FIRMS IN LAGOS STATE

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Abstract
Given the critical roles of management accounting information in supporting managerial functions, its usage, to optimize organizations values, must be aligned with firm's characteristics or contingencies. The extent to which firms' contingency factors are being considered in the choice of management accounting practices is the focus of this study. Specifically, this research investigated the variation in management accounting practice as explained by Perceived Environmental Uncertainty (PEU), firms age, discipline of management. Cross-sectional research design was employed to collect surveyed data from randomly selected 327 senior management staff of manufacturing companies in Lagos. The obtained data through closed-ended questionnaire was analyzed using descriptive statistics (proportion and measure of central tendency) and inferential statistics (multiple regression analysis) to estimate predictors. The results revealed findings that PEU ($\beta = 0.387 < 0.05$), discipline of management ($\beta = 0.257 < 0.05$) and firms' age ($\beta = 0.431 < 0.05$) significantly influence the level of at which management accounting techniques are put to use in generation information to perform various functions. On the basis of reported findings, the conclusions were: firms that are perceiving high level of environmental uncertainty make use of management accounting technique more often as well firms that have spent longer years in the business. Similarly, top management that have qualifications in management-related courses extensively make use of management accounting techniques. Given this conclusion, the study recommends that as level of uncertainty in environment increase firms should generate more accounting information to monitor the environment. It is important for management that as firms are growing older, extensive use of management accounting should be encouraged to effectively manage complexity inherent in firm's expansion and finally, management should try to acquired more managerial skills to improve the optimum use of management accounting techniques
Keywords: Perceived Environmental Uncertainty, Management Accounting Practices (MAPs)

INTRODUCTION

The manufacturing industry is key to the economies of many countries and governments are interested in these sectors because of their multiplier effect on the economy (Avaram, 2018). Globalization and increased competition in the manufacturing industry create the

need to improve the performance of its activities. To survive the contemporary competitive, comprehensive accounting information is essential for managers to discharge their functions to enhance shareholders' value. Management accounting information assists management to do the works of planning, problem solving attention-directing, decision making and controlling of subordinate activities (Ovidian, 2019)

However, it was revealed in the classic field works g Hofstede (1967) that proper functioning of budgeting system depends on economic, technological and sociological considerations display by firm. Thus, alignment between firms' contingency factors and management accounting design and usage determine management accounting effectiveness. In line with this argument, studies have been carried to further empirically affirmed the thesis. The reviewed studies are: Gul and chi a (1994), Taylor (1996), Tilema (2005) Naranjo-Gil and Hartman (2007), Cadez and Guilding (2008), Cadez (2009). These studies revealed that location, gender, job characteristics, organization structure, market orientation, strategic priorities determine the design and level of deployment of management accounting system.

Similarly, recent studies such as Ahmad and Alwi (2018), Declarice (2019), Chan (2020), Salawu (2020), Nishimura (2021) and Johnson (2021) have lend evidence to fact that intensity of competition, firms' size, organization structure, information technology and competitive strategy influence the design and usage of management accounting system among firms in Malaysia, China, Ghana, Singapore. Although, manufacturing companies in Nigeria may be described as struggling to survive the Nigerian economic environment in one way or the other, the extent to which management accounting techniques are being used as a supporting tool in this kind of environment in line with their peculiar contingencies is of importance to effectively sustain the life of these firms. Although the range of contingency factors as reviewed in the preceding paragraphs may be of relevance to explain design and level of usage of management accounting techniques, the nature of Nigerian business environment informed the choice of contingency factors of age, perceived environmental uncertainty and discipline of management staff as variable of interest in this study. Thus, this research's objective was to investigate the extent to which firm's age, perceived environmental uncertainty and discipline of management staff influence the level of management accounting practices among listed Nigerian Manufacturing Firms.

It should be noted, to the extent of literatures reviewed, only two of these studies (Mohammad 2019; and Salawu, 2020) were on Nigeria's private firm and public sector organizations. Thus, contributing to the empirical evidence in this line of research to affirm

contingency theory's postulate is justified on the ground that firms will be guided on how to design and use management accounting technique to achieve fit of effectiveness.

LITERATURE REVIEW

Conceptual Review and Clarification

The variables of interest were conceptually clarified through the review of different scholars' description and definition as presented in this sub-section.

Contingency factors

The term contingency factors have been conceptualized as those contingent variables that are outside the direct control of the organization (Otley,1980). Donaldson (2001) also sees contingency as intra and extra organizational factors. He named three specific contingency factors; task uncertainty, task interdependence and organization size. Bedford (2015) refers to contingency as those variables that are external to the management activities. Chenhall's (2003) comprehensive review of the contingency-based MCS studies identified primary contingency factors to entail: external environment, technology, organization structure, size, strategy and culture. Messner (2015) exploits the ideas of Otley (1978); Hirst (1981); Ezzamel (1990) and Gedin and Greve (2008) to describe contingency as a set of variables or factors that determine whether a particular accounting or control system is more or less appropriate for an organization.

The contingency theories, management controls and strategic management literature laid more emphasis on: size and structure and environment uncertainty as contingency factors (Dobák, 2006; Dobák-Antal, 2010). Recently, managerial characteristics and institutional factors have also been considered in accounting literatures as contingency factors. But in this study, the contingency or contextual factors considered are: perceived environmental uncertainty, management discipline and firm age.

Perceived environmental uncertainty (PEU) is defined as a situation where managers perceived element of the environment to be uncertain (Chenhall, 2003). Bedford and Malmi (2015) defined PEU in term of unpredictability, turbulence, complexity and hostility. Specifically, Unpredictability is defined as inability to anticipate variation among elements of environment and assess the effect of material change on the organization; turbulence implies rate of change and instability in the environment; complexity connotes range and diversity of environmental factors relevant to the firm operations and hostility is seen as degree of threat from competitors for market demand, necessary resources and opportunity for growth. This study adopts these dimension of PEU for its operationalization.

Management discipline refers to the branch of knowledge learned at the college or university. This thought is similar to description of discipline by oxford advanced learners' dictionary as a branch of knowledge, typically studies in higher education. Thus, management discipline in this study is defined as the branch of knowledge management acquired in higher education. For instance, accounting discipline focuses on different aspect of financial management. Thus, a manager that possesses knowledge in different aspect of financial management through higher education can be described to have accounting discipline or an aspect of managerial discipline.

Firm age, for the purpose of this study, is defined in term of number of years an organization has been in existence as manufacturing business. This conceptualization is in line with previous studies like: Davila &Foster, 2005 and Bedford & Malmi (2015).

Meaning and attributes of management accounting

Scholars in the field of management accounting discipline as well as practitioners have described management accounting from different perspectives**.** Most of these perspectives center on the provision of information to assist managers in carrying its functions. In this regard, Institute of Management Accountants (IMA, 1981) defined management accounting "as the process of identification, measurement, accumulation, analysis, preparation, interpretation, and communication of financial information to management to perform functions of planning, decision making, and control and to assure appropriate use of and accountability for its resources". In evaluating this definition, it can be argued that management accounting practices entail the generation of accounting information for managerial activities through management accounting techniques ranges from preparation of budget, budgetary control information, contribution, cost tracking and accumulation for profit measurement and inventory valuation. Similarly, Romney and Steinhart (2014) defined management accounting from information system perspective. They see management accounting as a system that processes data and transactions to provide users with information they need to plan, control and operate their business. Other definitions in the highly-rated textbooks are that of Cost and management accounting (Drury, 2005) and (Hongren 2012) with similar perspectives of management accounting practices(MAP) to implies generation of accounting information for managerial functions through management accounting techniques. This dimension of MAP was adopted as basis of its measurement

Theoretical framework

The inception date of the term "contingency theory" is not known as claimed by Donaldson (2001). But Budapest (2012) affirms that the term is first mentioned in the literature by

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Lawrence and Lursh (1967). The theory is a response to the stand of Tailor, Frayol and Webber's disposition to the universally applicable organization management principles or techniques Budapest (2012). The theory mainly assumes that a general strategy, structure, management practices (such as Management Accounting Techniques or Practices) applicable to all organization does not exist. It is therefore suggesting that according to Ezzemel and Hart (1987) "the best way to organize is contingency-specific to circumstance that the organization find itself". In similar view, Baranyi (2011) is of the opinion that the theory assumes different circumstances required different organization arrangements. Dobak and Antal (2010) argue that the contingency theory is expected to explain the differences between organization arrangements and practices. Soobaroyen (2007) affirms its prediction of an interaction between management control system, contingency variables and organization performance. Thus, in line with prediction of this theory, contingency factors of interest in this study are expected to explain variation in the level of management accounting practices among the listed firms.

Empirical review and hypotheses Development

Empirical evidence on degree at which management accounting techniques are being employed for various managerial functions in context of firms' contingencies have been located in the literatures. These studies include that of Gul and chi a (1994),Taylor (1996), Tilema (2005) Naranjo-Gil and Hartman (2007), Cadez and Guilding (2008), Cadez (2009) whose findings show that location, gender, job characteristics, organization structure, market orientation, strategic priorities explain the design and level of deployment of management accounting techniques.

Recent studies such as Ahmad and Alwi (2018) investigated the determinants of management accounting practice in four Asian countries: Malaysia, Singapore, China, and India and reported that contemporary techniques were not employed by most of the countries, while traditional techniques were assessed as 'very useful to many of the Asian countries, while Ghosh (2019) assessed the effect of contingency factors on management accounting practice in Singapore. The study revealed that the intensity of competition and size of the firm have significant effect on management accounting practice. However, new techniques like TQM and ABC have very limited use among the manufacturing firms in Singapore. Chan (2020) conducted an investigation on how organization structure, information technology and competitive strategy align with the choice of management accounting techniques among firms in Ghana. The study reported evidence that as organization employed formal organization structure as a form of chain of command, the degree of management accounting practices increases, while level at which information technology are being used in their day to day operation also expand the scope of

management accounting practices. The study also revealed that firms with customer-oriented strategy tend to have broad and detailed accounting information to monitor the effectiveness of the adopted competitive strategy.

Studies of Nishimura (2021) and Johnson (2021) have shown how environmental uncertainty, intensity of competition and market dynamism influence management accounting practices. In Nishimura's (2021) study, environmental uncertainty and intensity of competition were reported to be explanatory variables on the design and level of detail of management accounting information being deployed for various managerial activities. Similarly, Johnson (2021) carried out an investigation whether companies in dynamic environment substantially invest in advance manufacturing technology than company in a stable environment. Using survey instrument administered on 216 manufacturing firms, significant difference was revealed between the environment of the three group created by cluster analysis.

Firms' characteristic such as firm's age, firm's size and managerial commitment are other contingencies that were also investigated by Siska (2016), Ahmad (2018) and Salawu (2020) with evidence that the older the firms, the wider the detail of management accounting information and also the bigger the firm, the higher the degree level of management accounting information usage and that highly committed management usually deployed very broad management accounting information to perform various functions.

Given the previous empirical evidence on the various factors influencing management accounting usage, and as postulated in the assumption of contingency theory, the following null hypotheses were raised for empirical validation in context of Nigerian Manufacturing companies in Lagos State:

H_{01}: There is no significant relationship between perceived environmental uncertainties and level management accounting practices among manufacturing companies in Lagos sates

H_{02}: Discipline of the top management has no significant influence on the level of management accounting practice among manufacturing companies in Lagos State

H_{03}: Age of the firm does not influence the level of management accounting practices among manufacturing companies in Lagos State.

METHODOLOGY

This study collected data through cross-sectional approach, since its objective was to explain variation in management accounting practices across manufacturing firms, by

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obtaining information on variable of interests, using organization members as informants. Thus, population for this study were all relevant organization participants of the seventy-six listed manufacturing companies in Lagos state. The nature of business in manufacturing settings suggests the need to extensively deployed management accounting techniques to generate relevant information to supports various operational activities. Specifically, appropriate data platform and sampling frame for this study were the senior management staff. These include Managing Director, General Managers, Principal Manager and Seniors Managers responsible for accounting, human resources, sales and marketing, and operation/production departments of the listed manufacturing companies. As detailed in their annual corporate reports, the seventy-six listed companies have a total of 2,204 senior management staff, constituting this study's sampling frame. A sample of three hundred and twenty-seven (327) staff were randomly drawn, which was determined through Krejcie and Morgan (1970) sampling table.

The primary data was obtained through a well-structured questionnaire. The instrument was designed in a form that measurement questions on each variable of interest reflect its conceptual features. Essentially, the questionnaire has a section for respondent profile and another section for variables of interests with likert-scale response format to generate quantitative data of interval level that was subjected to both descriptive (proportion and measure central tendency) and inferential statistical (multiple regression technique) analysis to estimate predictors of response variable through hypotheses testing. Before the testing of hypotheses, the obtained data was subjected to test of validity and reliability as well as normality and multicollinearity tests accordingly.

RESULTS AND DISCUSSION

Results of this research contain reports of diagnostic tests of the obtained data, descriptive statistics of both the respondent profile, and variables of interests and hypothesis testing as detailed in the following sub-sections

Preliminary/diagnostic tests

The diagnostics tests confirm the normality of the data as required by the assumption of multiple regression while validity and reliability tests were conducted ensure that the instrument actually reflects the attribute of the research variables; and to minimize multicollinearity problems, pair-wise correlation test was conducted. The reports of all these tests are focus of this sub-section

Test of Normality

The extent to which the score on the study variables are normally distributed was measured using the test of skewness and kurtosis as presented in table 1. Based on the threshold of -

3 t0 3 for skewness and kurtosis, all the scores on the study variables were to a greater extent normally distributed

Table 1: Normality Test

S/N	Constructs	Mean	S.D	Skewness	Kurtosis
1.	Management accounting Practices(MAP)	4.6774	.33685	-1.371	1.846
2.	Age	4.7462	.35698	-1.492	1.703
3.	Discipline of top management(DTM)	4.8022	.27717	-1.597	1.635
4.	Perceived Environmental Uncertainty(PEU)	4.6208	.30906	-1.023	1.656

Source: Author`s Statistical Report (2022)

Multicollinearity Test

The results of the pair-wise correlation analysis are presented in table 2 which shows that none of the pair-wise correlation among independent variables exceeds 0.70. and thus issue of multicolleniarity did not exist among variables

Table 2: Pearson correlation matrix for all independent variables

	MAP	Age	DTM	PEU	Competition	Discipline
MAP	1					
Age	0.57	1				
DTM	0.50	0.22	1			
PEU	0.39	0.66	0.57	1		

Source: Author`s Statistical Report (2022)

Test of reliability and Validity

As for validity test, the instrument was subjected to both pilot test and expert evaluation review and all the observation were integrated into the final draft of the instrument before it was finally administered, while the report of the reliability test through Cronbach Alpha test is presented in Table 3. Which shows that the Cronbach Alpha coefficients for each of the research variable arein the range of 0.70 to 0.75, indicating that obtained data was reliable measures of all variables of interest: MAP, Age, DTM and PEU,

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Table 3 Reliability Test

Variable	Cronbach's alpha	N
MAP	0.703	6
Age	0.753	6
DTM	0.711	6
PEU	0.725	5

Source: Author`s Statistical Report (2022)

Descriptive statistics of the Firm profile, Respondents' Profile and Research Variables

Descriptive Statistics of the Firm

The frequency distribution presented in table 4 shows that 56 companies were under consumer goods sector which represent 73.60% and 20 companies were under industrial goods sector and which also represent 26.30% of the total quoted manufacturing firms in Lagos State, Nigeria. **Table 4 Characteristics of the Firm Profile**

Description	Characteristics	Frequency	Percentage (%)
Sub-Sector	Consumer Good	56	73.60
	Industrial Good	20	26.30
	Total	**76**	**100**
Age of the Firm	0-5years	35	10.7
	6-10years	46	14.1
	11-15years	47	14.1
	16-20years	46	14.1
	21years and above	153	46.8
	Total	**327**	**100**

Source: Author`s Survey, 2022

This revealed that more than 70% of the quoted manufacturing companies produced goods for immediate consumption. The distribution of the questionnaire across the company's age shows that 46.8% of the companies have been in existence for the period of twenty-one years and above. This implies that majority of the companies are not infant but relatively experienced to initiate various forms of management accounting practices

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Descriptive Statistics of the Respondents Profile

In table 5 the characteristics of the respondents in terms of gender, age of the respondents and the firms, academic qualification and discipline of the top management are presented. The finding showed that a total of 69.4% Males and 30.5% females have participated in this Survey. This implied that obtained data represent the view of organization participants across gender.

Table 5 Descriptive Statistics of the Respondents Profile

Description	Characteristics	Frequency	Percentage
Gender of Respondents	Male	227	69.4
	Female	100	30.5
	Total	**327**	**100**
Age of Respondents	Less than 25 years	76	23.2
	26-35 years	146	44.6
	36-45 years	74	22.6
	46 years and above	31	9.5
	Total	**327**	**100**
Professional Qualification	ICAN	79	24.0
	ANAN	5	1.5
	CIMA	43	13.1
	CFA	29	8.9
	OTHERS	171	52.2
	Total	**327**	**100**
Disciplines	Management Science	57	17.4
	Social Sciences	98	29.9
	Pure and Applied Sciences	137	41.8
	Humanities	32	9.8
	Engineering	3	0.01
		327	**100**

Academic Qualification	Primary School Certificate	12	3.7
	WAEC?GCE?NECO	42	12.8
	NCE/ND/A LEVELS	85	25.9
	B.Sc. or its Equivalent	170	51.9
	Others	18	5.5
	Total	**327**	**100**

Source: Author`s Survey, 2022

The majority of the respondents in this survey fell within the age bracket of 26-35 years and constituted a percentage of 44.6% and those with age bracket of less than 25 years have percentage of 23.2%, 36-45 years of age have 22.6%. Respondents of 46 years and above have 9.5%. The frequency distribution in terms of age shows that 44.6% of the respondents provide answers to the questionnaires which indicate that active labor force provides answers to the questions. In terms of qualification of the respondents, 51.9% of the respondents were graduates of Universities and Polytechnics. This implies that substantial number of the managers is literate with capacity and ability to comprehend the administered instruments. Frequency distribution in the area of discipline indicates that 48.1% are in the area of management science, 29.9% managers studied social sciences, 17.4% studied humanities, 9.8% studied pure and applied sciences and 0.01% studied engineering. This distribution pattern suggests a tendency that management accounting practices are in use because larger percentage of the managers are from management science discipline. The distribution of questionnaire in the area of professional qualifications revealed that more than only 1.5% of the staff have ANAN, only 24% of the staff has ICAN, 13.1% of the staff has CIMA, more than 8% has CFA and only 52.2% has other professional qualifications.

Descriptive Statistics of the Research variables

Table 6 reported the summary of the response rate on the management accounting practice (MAP) gives an insight on level of MAP as well as on Age, PEU, DTM respectively. The mean response rate of 4.6774 on MAP affirmed that most of the respondents perceived that management accounting techniques are in use at high level across the focused firms

. **Table 6 Summary Statistics of the Study Variables**

Variables	**N**	**Mean**	**Standard Deviation**
MAP	327	4.6774	.33685

Age	327	4..7462	.35698
DTM	327	4.8022	.27717
Perceived environmental uncertainty	327	4.6208	.30906

Source: Author`s Computation, 2022.

Similarly, the mean response rate on Age, DTM and PEU are in the range of 4.6 to 4.8 indicating the most of the firm are not new in the industry, majority of their management staff possess qualification in the management sciences and the environment where they are operating perceived to be highly uncertain.

Estimation Techniques and Hypotheses testing

The general objective of this study was empirically answered through the three hypotheses earlier stated in section 2. The estimated parameters for each independent variable through multiple regression techniques were all significant at 5%. In relation to null hypothesis one (There is no significant relationship between perceived environmental uncertainties and level management accounting practices among manufacturing companies in Lagos sates), there exist a significant influence of PEU ($\beta = 0.387 < 0.05$), on the level of MAP, leading to rejection of null hypothesis. Similarly, the reported significant estimated parameter ($\beta = 0.257 < 0.05$) of DTM lead to the rejection of null hypothesis two(Discipline of the top management has no significant influence on the level of management accounting practice among manufacturing companies in Lagos State) and as well as for hypothesis three(Age of the firm does not influence the level of management accounting practices among manufacturing companies in Lagos State). , with significant estimated parameter($\beta = 0.431 < 0.05$) of Age

Table 3 Regression results on the influence of contingency factors (EU, DTM and Firm`s Age) on management accounting practices

Variables	Coefficient	Standard Errors	t-value	P-value
Environmental uncertainty	0.387	0.093	4.1612	0.001
Age of the firms	0.431	0.046	9.369	0.000
Discipline of top management	0.257	0.052	4.942	0.011
Constant	0.194	0.079	2.367	0.040

F-statistic	52.50	
P-value	0.004	
R-square	0.793	
Adjusted R-square	0.790	

Sources: Author`s computation, 2022

In general, the reported adjusted R-square of 0.790 indicates the model fit of the regression line. By interpretation, the 79% variation in the level at management accounting techniques are in use among manufacturing can be significantly explained by contingency factors of Age, DTM and PEU.

Discussion of Findings

Since the reported evidences have confirmed that contingency factor of age, DTM and PEU have significant influence on the level of management accounting practices among manufacturing firms, variation in management accounting practices across firms can be argued not to universal but contingent to firms internal and external factors. Within the scope of this study, the level of uncertainty of the environment as perceived by organization participants have considerable influence on the way in which management accounting techniques are being used as a decision-support. For any organization to survive in such environment, detailed information is required for planning and control of the environment and thus, management accounting techniques are mostly use to generate such information. Previous empirical evidences reported in the studies of Muhammad (2016); Anand, (2017); Azize, (2017); Chenhall and Langfield-Smith, (2019); Daniel (2019), Majeed (2020) and Salawu (2020) align with this study reported findings and as well confirm the prediction of contingency theory that firms employed management techniques in line with their peculiarities.

Similarly, the revealed evidence of significant effect of discipline of top management on the extent of management accounting practices is an indication that the skill required to effectively deployed management accounting is a factor that must not be overlooked. Management staff with requisite knowledge of management discipline will find it easy to make use of information generated through techniques of management accounting to carry

out various functions of planning, decision making and controlling. These reported findings confirmed the previous evidence observed in the studies of Sadiya (2016), Yusuf and Bolarinwa (2019), Natalia (2018), Majeed (2020) and also the postulate of contingency theory.

Since the evidence has also confirmed that Firm's age determines the level of management accounting practices, it can be argued that as firms grow in age, various complexity relating to management of firms require much information to be generated to cope with such complexity of planning and other functions. Similar evidence as revealed in this study were obtained in the works of Xiao (2015), Hvonen (2016), Okoli (2018), Ahmad (2019), and Shamsudeen (2020) who reported a significance positive relationship between firm`s age and management accounting practice.

CONCLUSIONS, RECOMMENDATIONS AND SUGGESTION FOR FURTHER STUDIES

Overall, the level of usage of management accounting techniques among manufacturing firms is to a large extent informed by the years of existence in the industry, discipline of top management and the way in which the environment is perceived to be uncertain. Thus, older manufacturing firms highly employed management accounting techniques, firms facing environment that is highly uncertain, generate information through extensive use of management accounting techniques and finally, the broader knowledge of management sciences possessed by management staff informed the high level of usage of management accounting techniques among manufacturing firms in Lagos.

Given these conclusions, this study recommends that firms should endeavor to have thorough understanding of their environment in order to employ appropriate management accounting techniques to cope effectively. Manufacturing firms are advised to train their management staff from time to time on business-related or management sciences courses in order not to be discouraged on the use of management accounting techniques when the needs arise. Finally, firms should endeavor to deployed management accounting techniques that fit their age at any point in time to derive maximum benefit of information advantage.

It is important to stress that findings reported in this study should be cautiously generalized in context of its research site. Aside, the nature of data used to obtain findings may not reflect all the behavioral issues on the relationship between contingency factors of interest and the management accounting practices. All these observed limitations do not constitute any problem to this work but informed the suggestion that further studies on the

contingency factors and management accounting practices beyond manufacturing may not be out of place to enrich literatures in this line of research and such study may employ mixed methods to reflects more evidence on behavioral implication of design and use of management accounting techniques given some contingency factors.

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