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The effect of organizational innovation and international orientation on export performance with the mediating role of technological innovation and moderating innovation capacity

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ABSTRACT

In introducing their innovations in international markets, companies try to gain a significant percentage of their market share and income from selling products in international markets. The aim of this research is to determine the effect of organizational innovation and international orientation on export performance with the mediating role of technological innovation and moderating innovation capacity. The type of the present research is a descriptive survey and the statistical population of this research is food exporting companies. For this purpose, 52 questionnaires were distributed and collected among the managers of food exporting companies that were selected by census method. The data collection tool of the present research is a questionnaire and its reliability was measured by calculating the Cronbach's alpha coefficient, which was higher than 0.7. The validity of the research tool has also been confirmed by performing confirmatory factor analysis technique. Also, structural equation modeling method has been used to analyze the data. The software used in the descriptive part is SPSS and in the structural equation part is Smart-PLS. The results of the present study showed that the effect of organizational innovation on export performance and technological innovation has a significant positive effect. International orientation has a significant positive effect on export performance. Technological innovation has a mediating role between the effect of organizational innovation on export performance. Innovation capacity has a moderating role between the effect of international orientation on export performance.

Keywords: organizational innovation; international orientation; export performance; technological innovation; innovation capacity

1. INTRODUCTION

In introducing their innovations to international markets, firms try to gain a significant percentage of their market share and revenue from selling products in international markets. The internationalization path is a term in international process theory and describes an approach in which firms gradually enter foreign markets, initially through independent agents, before establishing their own sales and production facilities, and eventually increasing their international connections. Firms overcome their perceived uncertainty of operating abroad mainly through an

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experiential learning process of entering surrounding markets, first conquering nearby geographical markets (Escandon-Barbosa et al., 2019).

Several external factors contribute to the phenomenon of globalization of firms' products, related on the one hand to the globalization of production and markets, and on the other hand to technological advances in technology and communications that link innovative business models with an international or global purpose. Firms, starting their export activities, target local export markets with innovative products to attract customers using Internet distribution methods (Escandon-Barbosa et al., 2019).

Firms' internal capabilities and competencies are the most important aspect of success in international markets. This is due to the lack of tangible resources compared to large companies that have more resources. Given the sensitivity of the outlook and commitment of firms to the international market as the main driver, the structure of international orientation is very important in relation to export performance. International orientation has been investigated in many studies focusing on export behavior, and researchers point out that this strategic orientation is related to export success. Therefore, considering the internal pressure and external pull effects of internationalization, attention is paid to the moderating effects in the relationship between international orientation and export performance (Escandon-Barbosa et al., 2019).

Researchers have confirmed the importance of exports in the global economy. Exporting, one of the most common means of entering international markets, enables firms to utilize unused operational capacity, increase production efficiency, and in turn, profit and ensure survival in a fully globalized market. With regard to exporting a product to a foreign market, it is achieved through planning and implementing an export marketing strategy. Accordingly, the determinants of export performance can be classified into internal factors including the characteristics of the firm and its management and export marketing strategy and external factors including the characteristics of foreign and domestic markets (Azar and Ciabuschi, 2017).

Changes in the environment generally cause changes in the strategies of the firm. External contingent factors and influential variables are the focal point, a situation that the firm is unable to change or control. In contrast, organizational or managerial variables and actions are responses to contingent factors. Therefore, the firm’s performance is related to the appropriate match of the response variables with the dependent factors. In this context, the fit between internal and external factors is expected to enhance the firm’s export performance. Researchers believe that it is essential for managers and researchers to understand the factors influencing export performance. And knowledge about the internal factors of export performance, especially innovation in export strategy, is considered as a factor of response to the possibilities presented in an external market environment (Azar and Ciabuschi, 2017).

Researchers argue that organizational innovation can act as a prerequisite and facilitator for the efficient use of technological innovations. That is, changes in the technical (operational) system of the organization must be accompanied by changes in the social (administrative) system in order to optimize organizational outcomes. However, the relationships between different types of innovation have rarely been examined. Therefore, drawing on the literature on social and technical system theory, this study examines the impact of organizational and technological innovation on export performance (Azar and Ciabuschi, 2017).

2. LITERATURE REVIEW

Innovation is the result of a new technological concept or idea and reflects a way for organizations to respond to technological challenges in the market. Innovation is a phenomenon of the present and future era that, in various forms, improves the performance of the firm. Organizational innovation is one of the intangible organizational phenomena and one of the facilitators and intermediary sources for competitive advantage. The analysis of firm performance and ultimately export performance has prerequisites that are raised in the form of innovation approaches and the international orientation of the firm.

Today, firms face intense competition in most economic sectors, in a way that makes it very difficult for them to compete with their competitors and perform better than them. To perform better than their competitors, firms must have a competitive advantage. Various techniques can be used to achieve such a competitive advantage and superior performance. Firms are trying to use the opportunities available in the market with effective activities by developing and implementing strategies, while improving the utilization and efficiency of existing resources and capabilities (Obeidat, 2016).

A firm’s strategy can have a major impact on its structure, activities, investments, market relevance, and business performance. Strategy can be used as a problem-solving tool that creates new capabilities and improves performance. A strategy can also provide a framework that allows an organization and its managers to bring together specialized assets, identify opportunities to offer valuable products and services to customers, and offer those products and services for greater profit in the market. However, not all firms respond to environmental changes in the same way. Responses to the operating environment can be categorized according to the firm’s strategic orientation. Although the research background has emphasized the benefits associated with adopting a market orientation, it has been reported

that firms may pursue complementary strategic orientations to achieve a competitive advantage (Huang, 2023). Apart from applying strategic orientation, firms are also encouraged to ensure a diverse set of organizational capabilities in order to achieve continuous innovation for sustainable success. Innovation is considered the best way to achieve competitiveness in the 21st century because it drives organizational growth and determines future success and is considered the driving force that allows organizations to survive in the competitive arena. Firms face various challenges that have forced them to adopt innovation as an integral part of their corporate strategy. Such challenges include global access to knowledge, technology integration, and short innovation cycles. Stagnant firms that are unable to innovate to adapt to changing environments eventually find themselves without a competitive advantage in an increasingly complex and technologically advanced economy. Therefore, innovation is well-established as a key factor in competitiveness, profitability, and productivity, and presence in export markets (Obeidat, 2016).
The conceptual model of the research is taken from the article by Azar and Ciabuschi (2016) and Escandon-Barbosa et al. (2019), which is shown in Figure (1).

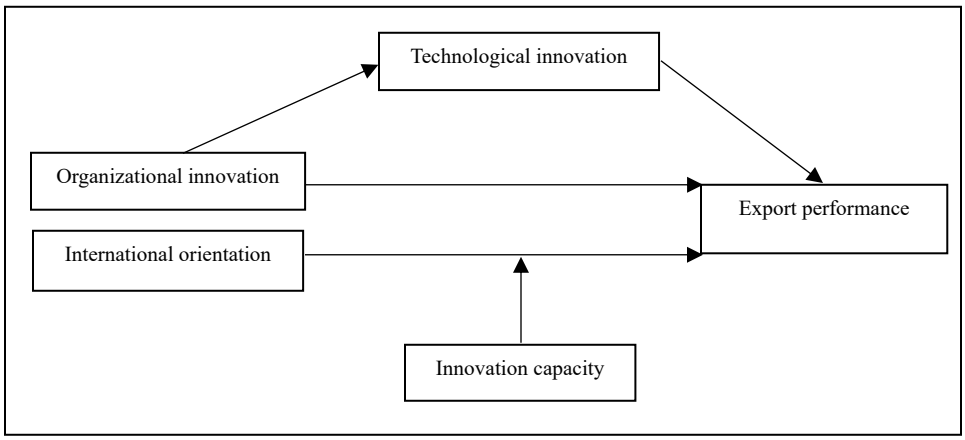


Figure (1): Conceptual model

3. RESEARCH METHODOLOGY

This research is applied research in terms of its purpose. It is also classified as descriptive research in terms of the method of inference regarding the research hypotheses. The statistical population of this research includes 52 food exporting companies. Descriptive and inferential tests have been used to analyze the data of this research. In the descriptive section, percentage, mean and standard deviation have been used, and in the inferential section, structural equations using the Smart-PLS partial least squares method have been used. The research questions are closed-ended questions with 5 options. Closed-ended questions provide a set of options from which the respondent can choose one. The questionnaire responses are graded on a Likert scale from strongly agree to strongly disagree.

Questionnaire reliability

For this purpose, the questionnaire data that was distributed and collected among 30 people as a pre-test, which was calculated according to Cronbach's alpha and was above 0.7, it can be said that the above questionnaires have sufficient validity, meaning that the answers given were not due to chance and coincidence, but rather due to the effect of the variable that was tested. In Table (1), the results related to Cronbach's alpha are given separately for each variable.

Table (1): Cronbach's alpha coefficients by variables

Variables	Cronbach's alpha Coefficient
Export performance	0.90
Innovation capacity	0.85
International orientation	0.83
Technological innovation	0.84
Organizational innovation	0.91

Reliability measurement based on Cronbach's alpha coefficient and composite reliability in the final test. Table (2) shows the values of Cronbach's alpha coefficients and composite reliability coefficient. As can be seen, all calculated values (both alpha coefficients and composite reliability coefficients) were greater than the minimum acceptable value

of 0.7, which can be concluded that the research questionnaire had appropriate reliability in all stages of data collection.

Table (2): Cronbach's alpha coefficients and composite reliability by variables

Variables	Cronbach's alpha Coefficient	Composite Reliability Coefficient
Export performance	0.89	0.91
Innovation capacity	0.78	0.85
International orientation	0.81	0.86
Technological innovation	0.71	0.82
Organizational innovation	0.84	0.89

4. Findings

Descriptive Statistics

Description of variables is important because the results of testing research hypotheses are extracted based on the indicators of these variables. The descriptive results are shown in Table (3):

Table (3): Descriptive Results of Research Variables

Research variable	Minimum	Maximum	Average	Standard Deviation
Export performance	1.25	4.75	3.75	0.74
Innovation capacity	1.60	4.80	3.68	0.71
International orientation	1.00	4.71	3.82	0.63
Technological innovation	1.00	4.50	3.63	0.64
Organizational innovation	1.00	4.75	3.59	0.79

Inferential Analysis

In the inferential section, the structural equation model and path analysis technique are used to examine the specified research paths in accordance with the conceptual model.

Construct validity

Construct validity is for us to determine whether the method or tool for collecting data well represents the theoretical structure or common underlying theories of the variable under investigation and is consistent with it. Figures (2) and (3) show the confirmatory factor analysis model and structural equations in the state of estimating standard coefficients.

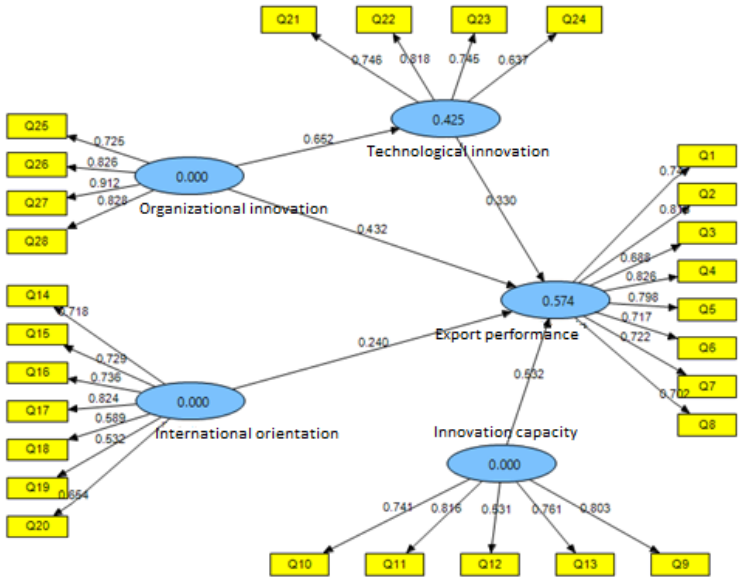


Figure (2): Research model with constructs in the mode of estimating standard coefficients

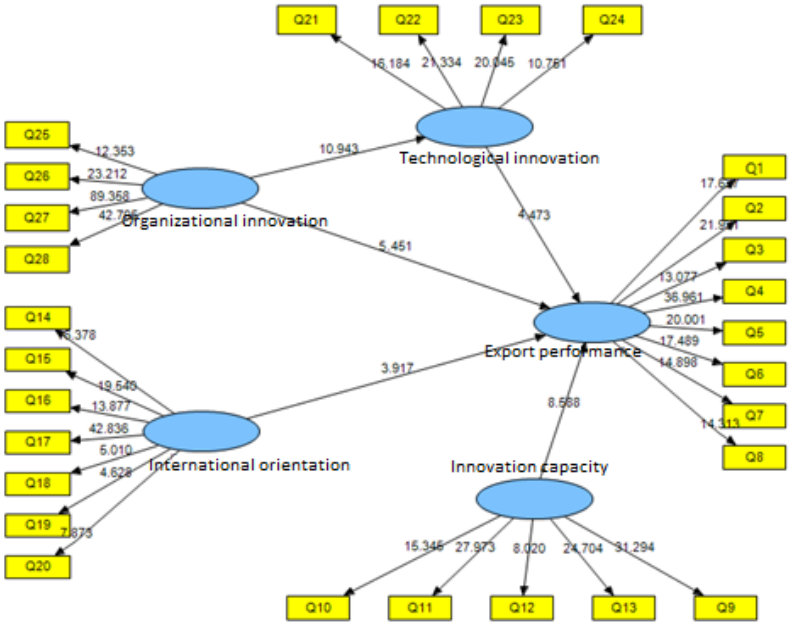


Figure (3): Research model with constructs in the state of absolute significance (|T-Value|)

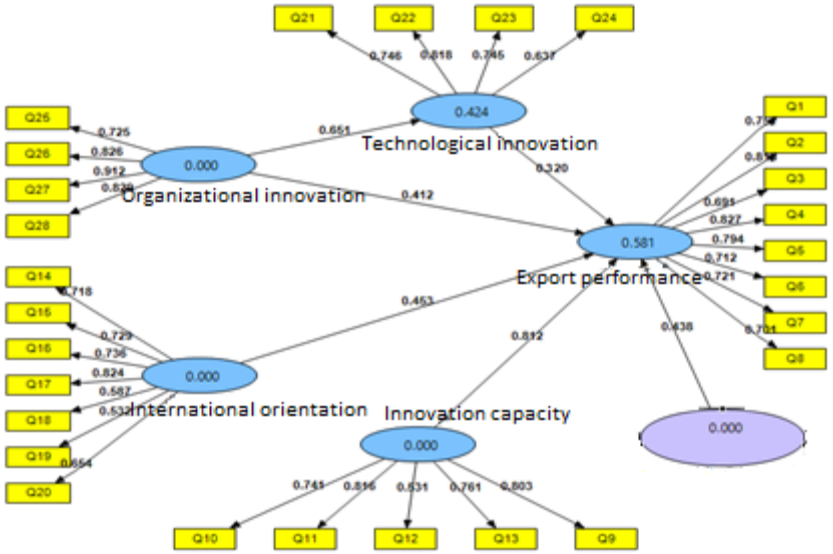
In Figure (2), it is clear that all factor loadings of the questionnaire items are greater than 0.3 and are desirable. For example, the results of factor loadings show that the export performance variable has a correlation (0.74) with its first question, and the results of the path coefficient show that the international orientation variable is effective with a path coefficient (0.24) on export performance. In Figure (3), the t-statistics for factor loadings and path coefficients are shown, and all of them are above the acceptable limit of 1.96, indicating that all factor loadings and path coefficients are approved. Therefore, all questions in the research questionnaire have the necessary validity and none of the questions in the questionnaire are eliminated. Table (4) shows the results of confirmatory factor analysis of the variables of the conceptual model.

Table (4): Results of confirmatory factor analysis

Measurement indicators	**Factor loadings**
Export performance	
Highly profitable exports in the past three years	0.74
High sales volume in the past three years	0.81
Achieving rapid growth in the past three years	0.68
Improving competitiveness in the past three years	0.82
Strengthening strategic position in the past three years	0.79
Satisfactory performance in the past three years	0.71
Achieving beyond expectations in the past three years	0.72
Company success in the past three years	0.70
Innovation capacity	
Embracing research-based technical innovations	0.80
Actively seeking new ideas	0.74
Employees readily embrace innovation	0.81
Rewarding employees for new ideas	0.53
Perceiving innovation as a new opportunity	0.76
International orientation	
Desire for growth Strong motivation to expand international activities	0.71
Possibility of increasing profits Strong motivation to expand internationally	0.72
Cautious and gradual expansion of export activities	0.73
Active exploration of new business opportunities in export markets	0.82
Strong ability to develop and adapt new products/services	0.58
Priority on success with export activities	0.53
Development of human resources and other resources that can contribute to successful exports.	0.65
Technological innovation	
Introducing product innovations in the past three years	0.74
Having product innovations in the past three years	0.81
Introducing process innovations in the past three years	0.74

Introducing process innovations in the past three years	0.63
Organizational innovation	
Introduction to management innovations in the past three years	0.72
Introduction to mainly management innovations in the past three years	0.82
Introduction to marketing innovations in the past three years	0.91
Introduction to marketing innovations in the past three years	0.82

The results of the structural adjustment model are also shown in Figures (4) and (5):



Modar (4): Research model with the inclusion of a modifier variable in the estimation mode of standard coefficients

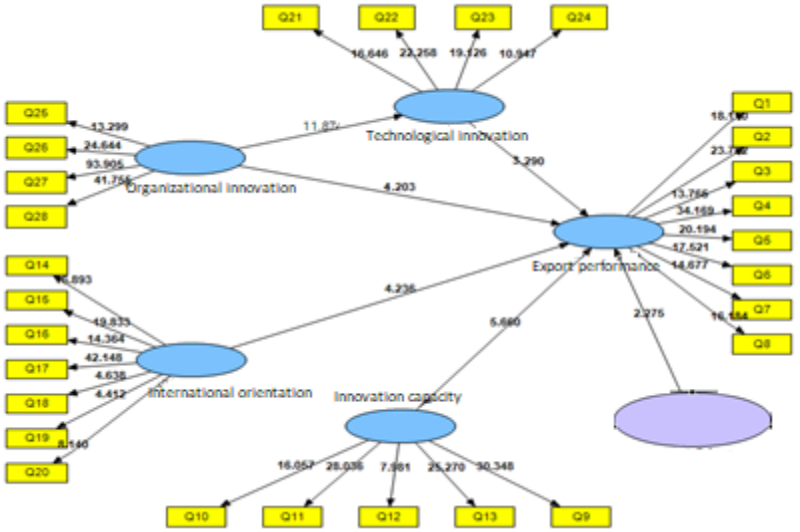


Figure (5): Research model with the entry of the modifier variable in the form of a significant absolute value (|T-Value|)

Convergent validity and internal consistency

The average extracted variance examines the correlation of each construct with its questions (indicators) and is used to measure convergent validity, which indicates the average variance shared between each construct and its indicators, and this average extracted variance must be higher than 0.4 to confirm convergent validity. The composite reliability must also be 0.7 or higher, which indicates sufficient internal consistency. The validation results are shown in Table (5):

Table (5): Convergent validity, internal consistency and model fit indices

Variables	AVE	CR	$R^{\dagger}$	Redundancy	$\sqrt{\overline{AVE}}$	$\sqrt{\overline{R^2}}$	GOF
Export performance	0.57	0.91	0.57	0.27			
Innovation capacity	0.54	0.85	-	-			
International orientation	0.48	0.86	-	-	0.75	0.70	0.53
Technological innovation	0.54	0.82	0.42	0.23			
Organizational innovation	0.68	0.89	-	-			

Convergent validity means that the indicators of each construct ultimately provide appropriate separation in terms of measurement from other constructs in the model. In other words, each indicator measures only its own construct and their combination is such that all constructs are well separated from each other. With the help of the extracted mean variance index, it was determined that all the studied constructs have an extracted mean variance higher than 0.4. The composite reliability index (internal consistency) was used to examine the reliability of the questionnaire, and all of these coefficients are higher than 0.7, indicating the reliability of the measurement tool.

Redundancy criterion

The model redundancy index is the most famous indicator for measuring the quality of the "structural" model. In this test, we select only endogenous variables. This criterion indicates the amount of variability of the indicators of an endogenous construct that is affected by one or more exogenous constructs. Regarding the criterion value for this index, a number is not stated and the mean of the redundancy index is a general measure of the quality of the structural model that is used for all endogenous constructs. In this index, values above zero indicate the desired ability of the structural model to predict, and values of 0.02, 0.15 and 0.35, respectively, indicate the weak, medium and strong predictive power of the structural model. The values obtained from the mean of this index indicate that the redundancy index of the endogenous variables of the model (technological innovation, export performance) and the structural quality of the research model was appropriate.

*Goodness of Fit Index (GOF***)**

This index indicates the compromise between the quality of the structural model and the measured model and is equal to:

$$GOF = \sqrt{\overline{AVE}} \times \sqrt{\overline{R^2}}$$

Where $\overline{AVE}$ and $\overline{R^2}$ is the average of AVE and R2. The GOF value index being higher than 0.4 indicates the model fit. The value of the fit index is 0.53 and is greater than 0.4, indicating a proper fit of the model. In simpler terms, the data of this study have a proper fit with the factor structure and theoretical foundation of the study, and this indicates that the questions are aligned with the theoretical constructs.

Correlation coefficient

A type of latent variable relationship in the structural equation model is based on correlation. Correlation is a relationship between two variables in the model, but it is non-directional. The table below shows the Pearson correlation coefficients for examining the relationship between latent variables in a pairwise manner. The number one is located on the main diagonal of this matrix, so that each variable is perfectly correlated with itself. In addition to examining the correlation coefficients, divergent validity has also been addressed. To detect this, first the AVE root of the latent variables is calculated and then the result is compared with the correlation values that this latent variable has with other latent variables, and the resulting AVE root must be greater than the correlation values. The results of the divergent and correlation validity are given in Table (6):

Table (6): Correlation coefficients

Variables	Export performance	Innovation capacity	International orientation	Technological innovation	Organizational innovation	$\sqrt{AVE}$
Export performance	1					0.75
Innovation capacity	0.73	1				0.73
International orientation	0.63	0.66	1			0.69
Technological innovation	0.58	0.66	0.76	1		0.73
Organizational innovation	0.47	0.58	0.48	0.65	1	0.82

The results of Pearson's correlation coefficients also show that there is a significant relationship between the research variables (all correlation coefficients are significant), so that export performance has the greatest relationship with

innovation capacity. The results of divergent validity also show that the value of the square root of the average variance explained index for most variables is greater than the correlation of that variable with other variables.

Validation of structural models (answer to hypotheses)

After validating the measurement models, it is time to examine the structural or internal model of the research. Table (7) shows the results of structural equations in order to examine the research hypotheses:

Table (7): Results of structural equations to examine the research hypotheses

Hypothesis	B coefficient	t	R^2
Organizational innovation has a significant effect on technological innovation.	0.65	10.94	0.42
Organizational innovation has a significant effect on export performance.	0.43	5.45	0.18
International orientation has a significant effect on export performance.	0.24	3.91	0.06
Technological innovation has a significant effect on export performance.	0.53	4.47	0.28
Technological innovation has a mediating role between the effect of organizational innovation on export performance.	0.21	3.12	0.04
Innovation capacity has a moderating role between the effect of international orientation on export performance.	0.43	2.27	0.18

$|t|>1.96$ Significant at $P<0.05$, $|t|>2.58$ Significant at $P<0.01$

Based on the results obtained from the structural equation coefficients, the t value for all research hypotheses has been estimated according to the five percent error rule in the region of rejection of the null hypothesis for values outside the range (1.96 to -1.96). Therefore, it can be stated that the research hypotheses are confirmed with 95 percent confidence.

5. Conclusions

One of the sectors that can contribute to the national economy is the creative industry. It is expected that the development of the creative industry will strengthen the future national economy. Researchers state that enterprises should simultaneously pursue customer-oriented and technological competencies because both are areas of innovation. However, excessive focus on customers can prevent enterprises from technological trends and current technologies. Therefore, exporters that rely on customers may be unaware of technological opportunities and innovations and fail in the business process.

As the results of the study showed, technological innovation in the company can be increased by strengthening marketing communications. In this regard, the descriptive results showed that organizational innovation has an average of medium and has a medium status in the company. Considering the indicators of "number of management innovations in the past three years", "marketing innovations in the past three years", it is suggested that: Food exporting companies should be able to provide management and marketing innovations by utilizing up-to-date technologies.

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