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The Impact of Reverse Logistics Capabilities on Firm Performance with Mediating Role of Business Strategy

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Abstract. This research aims to study the impact of reverse logistics capabilities on firm performance with mediating role of business strategy. This is a survey type and applied form research. Also, this research entity is descriptive-correlation, based on data collection method. Current research sample includes all 310 top and inter-mediate and operational managers of Shiraz Dena Tire Company. In this research, Cochran model was used to compute required sample (95% meaningfulness level). Thus, for such a sample, this research needs 171 participants. The research materials include research-made questionnaire. Results showed that logistic data management (closed loop capability, integration capability, cooperation capability, institutional incentive and conformity capability) has meaningful impact on organizational performance.

Keywords: Reverse Logistic Capability, Organizational Performance, Dena Tire Company.

1. Introduction

In current high-competitive world, only those organizations can continue their live and activity that benefit from higher competent organizational performance than their competitors and not only, they make benefits of their opportunities, but also make use of threats (Ghorbanizadeh, et al, 2012). Organizational performance resulted from executive processes and organizational goals achievements. In other words, organizational performance is achievements of human force tasks behalf of organization (Casio, 1989). Organizational performance mostly includes all competitiveness goals and perfect production and related to costs, flexibilities, and speed, quality or confidence potentials. In addition, organizational performance is an umbrella and encompasses all achievement-related concepts and whole organization activities. Two main factors influence on organizations performance include inner-organization and outer-organization factors. Outer-organizations include economic, social, political, cultural and legal factors and inner-organizational factors include intellectual property, innovation, and organizational strategy, those roles in organizations are magnificent (Antoncic, 2004). Reverse logistic management is a small but important part of current supply chain, and permit companies managers to return goods and returned raw materials to suppliers and in order to preserve consistency, cooperating production and distribution activities were carried out and prevent operational stop due to lack of currency and also, make use of goods and returned products set significant strategies, frameworks, systems and methods in order to reduce total expenses related to supply chain. Nowadays, high power of worldwide supply companies and production globalization by supply companies highlighted urgent significance and attention to supply chain management (MSC). Thus, company's competitive advantages depend on supplier companies' capability rate. Supply chain is the perfect process of products and service supply for final consumers. In order to create better competitiveness advantage in current economy area, one of the main loops to decrease expenses and increase benefit is products supply chain. This study was carried out as relationship between storage, transportation and currency decline a few months ago, nowadays, adding construction management issues, supplies and orders led to distribution

management and created logistics and finally turned to current supply chain.In fact, by prevalence and encompassing feature before, during and after logistics, Supply chain not only acts as a one-way and linear relationship, but also, the supply chain is circular and revolving and goods cycle turns in opposite direction and shaped reverse flow. Supply chain are in different forms and shapes and they might be complicated, an industry includes hundreds of suppliers, thousands of production workplaces, stores, dealers, sellers, mongers, customers and supportive duties like product engineering, purchase agencies, banks and transportation companies. In such a situation, supply chain is not linear but it acts in cycle form. Thus, the products flow might have reverse turn, so that, such a manner is evident about returned products. In fact, reverse logistics encompass all supply chain activities in reverse form and finally decrease expenses and increase incomes and customers service level.In order to facilitate and expand reverse logistic strategy, Bright Point Institute (2009) designed a set of activities in order to maximize value creation for customers by managing substantial potentials. Bright Point created a perfect set of reverse logistic potentials for properties return that includes properties management, receivables accounts management, advanced customer exchange programs, components and elements recycle, creating online and professional telecommunication services center, customer reporting channels for reverse logistic potentials evaluation were used previous research features. These features include properties return permit, customer receivables combination, reworking/ recycling and processing includes two elements reflecting recycling schedule and quality.Due to the fact that there are many criteria and various factors in reverse supply chain processes (distribution processes, transportation, production programming, and currency control) led to attain organizational and whole system goals. Also, reverse logistic gain research interests due to value recycle power from returned and reused products, and act as key elements in supply chain. Thus, in spite knowing process features in reverse supply chain and optimization of incompatible goals in some cases are contradictory, but they are the main necessities and factors of current research. Business strategy definition is as follow: “Business Strategies are plans, options and decisions applied, so, they led the company to higher profitability and

higher successes". (Jeremy Kordi, translated by Mehrdad Mollaei, 2015). Business strategy is one of the main current issues of companies and organizations that increase competitive space (lee, Zheng & Chan, 2005). In order to achieve better performance and competitive advantages, companies must ensure that their strategies are compatible with their management control system. According to above mentioned and significance of reverse logistic issue, the main goal of this research is to study reverse logistic influence on organizational performance due to business strategy mediating role in Dena Tire Company.

2. Literature review

Study of reverse logistics dated back to 1980 and led to network designing, optimization and production programming (barns, 1982). Supply chain management urges to integrate the supply chain of various companies valuable activities, even though many firms failed in integration of forward and reverse logistic activities, but, reverse logistics like forward logistic must be focused due to increasing pressure, trade requirements and customer needs like financial components, customer needs, support potential, competition and legal requirements.Abovementioned trends are useful for companies to see reverse logistic in strategic point of view rather than operational view (Dedrick, 2011). There is a comprehensive agreement that reverse logistic operational management like customer satisfaction to company services decrease expenses (Dolatshahi, 2000). Yet, theoretical support and rare experimental documents show reverse logistics potential field influence on organization performance.This research aims to study reverse logistics potentials on organization performance and business strategy mediator role. This study divided into 3 categorizes: 1. this is the first research that aims to study 3 (point of views based on firm resources, transactions expense economy, and institutional theory) theories to develop reverse logistic research model 2. This research proposed experimental solution for successful reverse logistics. 3. Also, this research introduces a proposal and policy for countries and areas that polluted the environment with high volume of wastages, so that the companies achieve sustainable reverse logistics. Rezaei (2017) suggested "reverse logistic execution, operational strategies to achieve resistant

economy in avionic industry" research. This research abstract says that: "nowadays reverse logistics development and closed loop supply chain strategy in developed and developing industries is a vital must. In current era, in which products long decrease increasingly, top managers of supply chain processes and logistics affair must focus on closed loop supply chain management process. Reverse logistic is one of the main issues of supply chain that rose as strategic activity in various organizations due to supreme value creation. Proper program of reverse logistics in organizations increase income, decrease operational expenses and extinct and defective pieces' expenses. Avionic and air transportation industry as one of the most important industries of the country is not an exception.During recent years, researchers interested in study of reverse logistic issues and explained the strategy advantages in research societies. Thus, due to significance of resistance economy as accepted economic strategy in this country, this research aims to study reverse logistics advantages, obstacles and challenges in resistance economy field. "Rajabi Sangtarashani & AliNejad (2016), suggested “necessity to apply reverse logistics to decrease expenses". The abstract says:" nowadays intensified competition led customers to demand low-price, high quality products in minimum delivery time span. Nowadays, changes in economy and industry speed up as fast as before. Due to globalization and minimization of the world, countries feel the competition more severely. Customers demanded those products and services that meet their needs, in the other hand, companies want to preserve their benefits and generate competitive advantages to increase their lifelong in market. In order to meet these needs, companies focused on supply chain network and integrated logistics. In current competitive space, efficient supply chain is a sustainable competitive advantage for companies that ensure firm survival and sustainable export of the countries in world market. One of the main parts of these money-saving activities is logistics activities.Efficient management of logistic activities not only acts as a significant source to generate competitive advantages, but also led to customer satisfaction and meets their special needs. Thus, reverse logistic focused on activities related to consume products plays significant role to decrease expenses and this research explain its influences". Ganjali et al (2013) suggested " analysis of features influence

on reverse logistics agility using instructive interpretive modeling strategy –IMS' indicated that as development of science and technology and permanent productivity increase, the products life cycle decreased and consumers demand become more personal and various, so that, companies faced within-predicted and changing competitive environments. Thus, rapid response to market competition becomes one of the most important issue and competitive advantage. Nowadays, one of the main issues in supply chain area is reverse logistic that encompass all operations related to goods and materials reuse. As agility is one of the most important tools of companies' sustainable development, achieving agility in reverse logistic is a necessary issue to decrease expenses, increase benefits and better method to meet customer needs. Due to significance of this issue, in this research review of literature, at first features influence on reverse logistic agility were identified, then, these features influence on each other were studied using interpretive structural modeling strategy and finally, the features ranks were determined.Alizadeh (2012) suggested "study of reverse logistic role in wastage recycle (case study of Metso firm) through library search, internet surfing and field study of research hypothesis test through questionaries' was explained 5 research variable (resource commitment, reverse logistic potentials, learning commitment, reverse logistic performance, reverse logistic strategic significance) about reverse logistic activities performance in lithography industry in Metso firm based on 2011 statistical data. This research has used Simonov -Kolmogorov statistical tests, a sample average test, correlation test and structural equation model, data were analyzed by SPSS and LISREL software. The results were as follow: A. Devoting human, financial and physical resources to programs and processes is helpful to improve reverse logistic programs performance and processes. B. Learning commitment in company let to creation of new potentials those enable the firm to create various strategic options and this issue is useful to attain substantial potentials in future. Various strategic options let the company not only preserve its commitment to specific actions but also keep its flexibility strategically. C. When a company shows strong learning commitment, then it will work harder for staff education. Some of these efforts will have significant and direct influence on reverse logistic potentials; these

efforts let higher efficiency of potentials and improve reverse logistic activity performance. D. Increasing significance of reverse logistic in firm strategy is useful to identify opportunities and threats and create more values, thus, finally, improve reverse logistic programs performance. E. Although it seems rational that reverse logistic potentials improves reverse logistic performance, thus, these potentials will improve economic performance of reverse logistic activity beyond the product unique market.Haghighat (2006) suggested "essential management of supply chain and reverse logistic role and not only declared essential management of supply chain significance and its related strategies as undeniable necessity, but also, introduces reverse logistic issue. Also, due to the fact that reverse logistic required close common share of production, marketing, financial affair, information systems, human resources, customer, etc. in order to prevent contradiction and heterogeneous conflicts in supply chain, in the other hand, it focus on bilateral flow of supply chain management.Vlachos (2016) Suggested "reverse logistic potential and organizational performance: mediating role of business strategies and aims to study reverse logistic potential influence on organizational performance and business strategies mediating role based on 3theories of reverse logistic potentials 1. Point of view based on company resources, 2. Transactions expenses economy and 3. Industrial theory. In this research, 6 capabilities of reverse logistic were studied those included information management preparation, closed loop potential, supply chain integration, supply chain cooperation, compatibility and institutional drivers. In this research 129 questionnaires were distributed among all Chinese cell-phone companies. Research results showed that reverse logistic influences on organizational performance. Organizational factors were more important than supply chain factors and one of the main factors was closed loop potential.Mario et al (2013) suggested "reverse logistic influence on supply chain performance. The research data were gathered from European Union statistics. Modeling was carried out through differential equation methods of mathematic science. Finally, results showed that reverse logistic will improve supply chain performance.Mathew Tsamenyi et al (2011) suggested " relationship between business strategies, management control systems and organizational performance and declared that in

recent years, china emerged as an economical giant and after US, japan and Germany is the fourth world economic power. China had a big sudden jump in world economy through identifying business strategies. In this research, random relationship between business strategies, management and performance control system in Chinese organizations were studied. Analysis showed that in companies with distinction strategies, non-financial components showed higher influence on performance and in companies with low expenses strategy, financial systems of management control showed higher influence on employee's performance.Arty et al (2001) identified reverse logistic potentials and confirm these potentials in various industries (Arty, et al, 2001). Also, Arty confirmed a set of these potentials in lithography industry. These potentials include properties return certificate simplicity, customer receivables combination management; credits process time span, reconstruction and reworking quality and schedule. While, it seems rational that reverse logistic potentials improve reverse logistic performance. These potentials will improve economic performance of reverse logistic potentials rather than unique product market.According to Vlachos (2016), reverse logistic potentials will have significant influence on organization performance. In this research, reverse logistic potentials was evaluated through 6 following variables: logistic information management, closed loop capability. Integration capability, cooperation capability, organizational driver, and compatibility. Thus, hypotheses 1 to 6 are assigned as follow:

- Logistic information management has significant impact on organizational performance.
- Closed loop capability has significant impact on organizational performance.
- Integration capability has significant impact on organizational performance.
- Cooperation capability has significant impact on organizational performance.
- Organizational driver has significant impact on organizational performance.
- Compatibility has significant impact on organizational performance.

In addition, according to Vlachos (2016), business strategies in field of reverse logistic play significant role in relationship between reverse logistic capability and organizational performance. In this research, reverse logistic business strategies were studied in 3 variable frameworks: joint reverse logistic, constructive reverse logistic and third party reverse logistic. Thus, all above mentioned hypothesis culminated in hypothesis 7 as follow:

- Joint reverse logistic mediates reverse logistic potentials and organizational performance effects.
- Manufacturer reverse logistic mediates reverse logistic potentials and organizational performance effects.
- Third party reverse logistic mediates reverse logistic potentials and organizational performance effects.

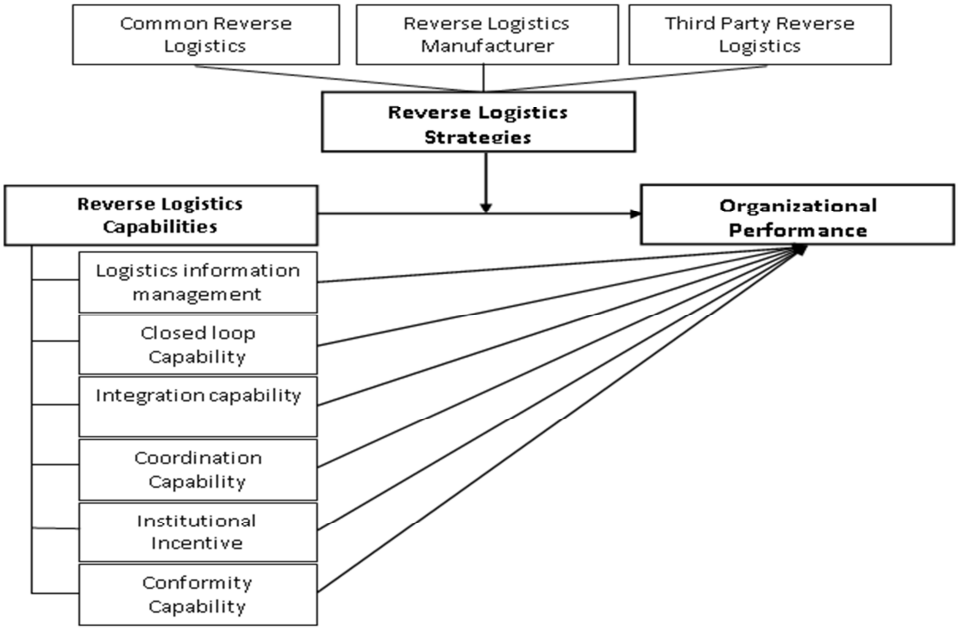

Figure 1. The conceptual model, Ilias P. Vlachos (2016)

3. Method

Generally, data collection method divided in library and internet surfing method in order to introduce review of literature and field study in order

to collect required data from participants. Also, the main statistical tool is researcher made questionnaire includes 35 questions, so that answers ordered based on Likert 5 option spectrum. The questionnaire was made in 2018.For data analysis and research hypothesis test, SMART PLS and SPSS software were used. The main hypothesis test method was direction analysis.

4. Findings

In this part, the research hypothesis was tested using structure equation modeling by SMART P.L.S. software.

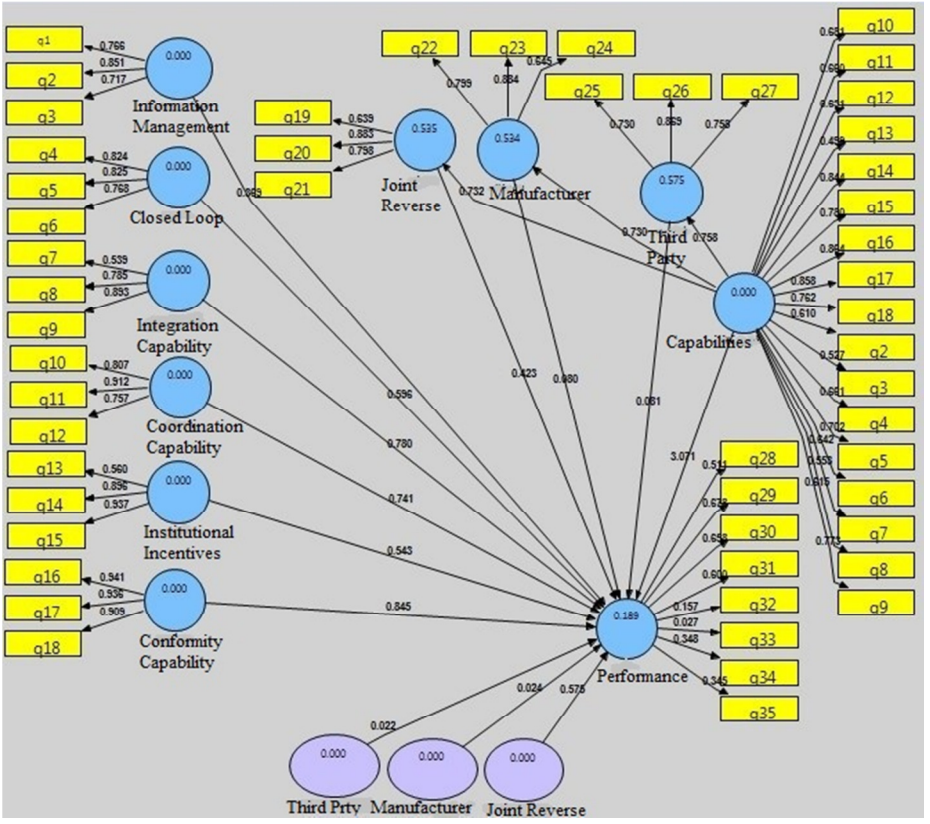

Figure 2. Measuring the general model and the results of the hypotheses in the standard state

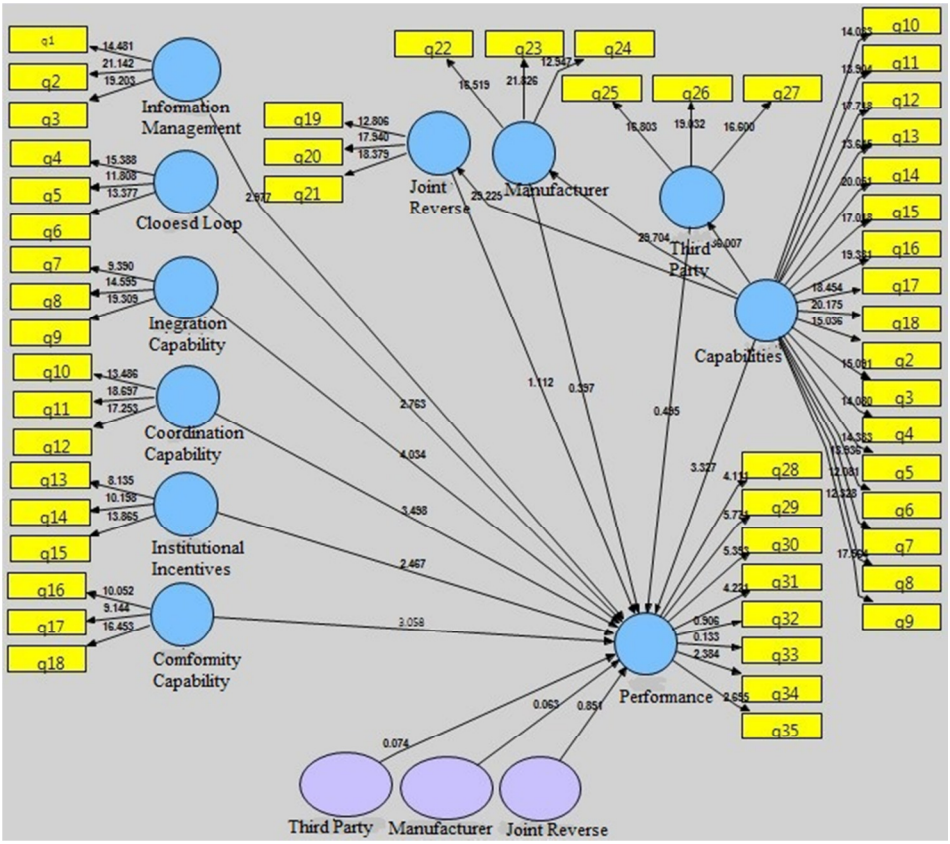

Figure 3. Measuring the overall model and the results of the hypotheses in a meaningful state

5. Discussion and Conclusions

In main hypothesis, the reverse logistic potentials had significant influence on organization performance and business strategy, statistics analysis between these two factors showed significant direction between two variable bigger than standard, thus, the hypothesis was confirmed. In the other hand, because the standard coefficient of the relationship is positive, then this is direct influence. That is reverse logistic potentials promotion will improve organizational performance in Dena Tire Company. This result is consistent with Rezei (2017), Rajabi Sangtarashani and Aalinejad (2016), Vlachos (2016), Nario et al (2013), and Mathew Sameny et al (2011) researches.The first hypothesis claimed

that logistic information management has significant impact on organizational performance. Statistical analysis showed that direction meaningfulness number between two variables was higher than standard, thus, closed loop hypothesis was confirmed. In the other hand, because obtained standard coefficient of this relationship is positive, then the influence is direct. That is, logistic information management driver improves organizational performance in Dena Tire Company. This research result is consistent with Haghighat (2006), Poursardar (2016), and Vlachos (2016) researches. Closed loop capability has significant impact on organizational performance; statistical analysis showed that direction meaningfulness number between two variables was higher than standard, thus, this hypothesis was confirmed. In the other hand, because standard coefficient is positive, then this is a direct relationship. That is, logistic closed loop feature promotion will improve organizational performance in Dena Tire Company. This result was consistent with Vlachos (2016) research. Supply chain integration and coordination should be critical in creating value and minimizing transaction costs, thus affecting firm performance. Statistical analysis showed that direction meaningfulness number between two variables was higher than standard, thus, integration capabilities hypothesis was confirmed. In the other hand, because standard coefficient is positive, then this is a direct relationship. That is logistic system integration potential promotion will improve organizational performance in Dena Tire Company. This result was consistent with Artery et al (2001), and Vlachos (2016) researches to integrate data in supply chain influence on organizational performance. Moreover, cooperation capability has significant impact on organizational performance; statistical analysis showed that direction meaningfulness number between two variables was higher than standard, thus, Cooperation capability hypothesis was confirmed. In the other hand, because standard coefficient is positive, then this is a direct relationship. That is, logistic system cooperation potential promotion will improve organizational performance in Dena Tire Company. This result was consistent with Vlachos (2016) research. Companies that are agile enough to react to institutional incentives should perform better than others failing to recognize and react to signals from their institutional environment. Statistical analysis showed

that direction meaningfulness number between two variables was higher than standard, thus, the hypothesis 5 was confirmed. In the other hand, because standard coefficient is positive, then this is a direct relationship. That is, organizational driver promotion of different unit's employees will improve organizational performance in Dena Tire Company. This result was consistent with Mathew Tsameni et al (2011) and Vlachos (2016) researches about financial levers of employee's performance management and organizational driver. Further-more, companies that have developed the conformity capability undoubtedly have great influence on their logistics activities. Statistical analysis showed that direction meaningfulness number between two variables was higher than standard, thus, the hypothesis 6 was confirmed. In the other hand, because standard coefficient is positive, then this is a direct relationship. That is, logistic system compatibility capability promotion will improve organizational performance in Dena Tire Company. This result was consistent with Vlachos (2016) research. Joint reverse logistic mediates reverse logistic capabilities impact on organizational performance. Statistical analysis showed that the direction meaningfulness number is lower than standard, then the hypothesis was not confirmed, that is Joint reverse logistic strategy has no influence on relationship between reverse logistic potentials and organizational performance. The result is contradictory with Vlachos (2016) research . Constructive reverse logistic mediates reverse logistic capabilities impact on organizational performance. Statistical analysis showed that the direction meaningfulness number is lower than standard, then the hypothesis was not confirmed, that is constructive reverse logistic strategy has no influence on relationship between reverse logistic potentials and organizational performance. The result is contradictory with Vlachos (2016) research. Hypothesis 9 claimed that third party reverse logistic mediates reverse logistic capabilities impact on organizational performance. Statistical analysis showed that the direction meaningfulness number is lower than standard, then the hypothesis was not confirmed, that is third party reverse logistic strategy has no influence on relationship between reverse logistic potentials and organizational performance. The result is contradictory with Vlachos (2016) research.

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