

Achieving Competitive Advantage by Using Supply Chain Strategies

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Abstract— The subject of the supply chain has received significant attention by researchers in the theoretical and applied fields of Operations Management and Marketing Management. Resulting in the need to develop successful strategies of supply chain and complement the organization's strategy in order to achieve competitive advantage. From this point view, the research problem was identified by asking questions about the strategies of supply chain and its suitability to the Company studied, as well as the knowledge of the requirements for successful supply chain, also knowing the effect of these strategies in achieving competitive advantage to the plant under study. The main objective of this research is to identify the relationship between supply chain strategies and competitive advantage in Alsamah Hosiery Company, Syria. Also, the research used the null hypothesis to determine the relation and effect between the study variables which is strategies of supply chain and the dimensions of competitive advantage. The result showed that supply chain is part of a value chain that deals with key activities in the company, also supply chain strategies has an impact on the company's competitive advantage. The external supply strategy had the highest impact. A number of recommendations have been put forward to the factory studied, most importantly, the need to build long-term relationships with suppliers and trend towards establishing a partnership as well as the need to adopt competitive standards by the factory management in the selection of suppliers (cost, quality and, fast delivery).

Keywords— *Supply chain, Vertical integration strategy, External supply strategy, Competitive advantage.*

1. Introduction

Business organizations are facing many challenges, most notably globalization, intense competition, and short product life cycle, making organizations constantly looking for a large market share and access to distinguished competitive position. As a result, new topics have emerged in supply chain, including customer satisfaction and competitive dimensions, which necessitated the attention of the participants to look at supply chain with a strategic vision.

The researcher chose Alsamah Hosiery Company located in Alssaboura Damascus, Syria as a case

study to conduct this research because it is huge industrial organization in the field of textile and hosiery industry, which is considered an important industry in Syrian economy as well as the subject matter of the study accompanied with special circumstances which is the current Syrian crisis. The sample of the research was chosen from the category of managers because they are administrative leaders in the departments of the factory and possess extensive experience in the activities carried out by the factory. Those managers are responsible for directing the future of the factory by virtue of the jobs they occupy, which requires comprehensive attention to all strategies and administrative methods and invest it in the best way for the benefit the company.

1.1. Research Problem

Business organizations seek to keep abreast of technological developments in order to meet major challenges produced by the business environment, including intense competition and shortening of products life cycle.

Researchers in the field of operations management and marketing gave great interest to these developments in the academic and applied domain. and the issue of supply chain is very important where new topics appeared in the supply chain, including customer satisfaction, partnerships, and competitive dimensions. From the above statement we proposed the following questions:

- a. What is the appropriate supply chain strategy in the factory under study?
- b. What are the requirements for success in supply chain?
- c. What is the impact of supply chain strategies in achieving competitive advantage for the factory under study?

1.2. Research Objectives

- a. To identify the latest developments in the domain of supply chain within the production, operations, and marketing field.
- b. To know the strategies that is related to supply chain.

- c. To expose the competitive dimensions used in the factory understudy.
- d. Diagnosis of relationship and impact between supply chain strategies competitive advantage in the company studied.

1.3. Research Importance

The importance of research stems from the following points:

1. Identify the reality of the company understudied during the Syrian Crisis in particular and the Syrian Textile and Hosiery Industry in general . And how consistent with changes in the business environment by bringing attention to top management about successful supply chain and its role in achieving competitive advantage.
2. Introducing the concept of supply chain to managers and its role in achieving competitive advantage.

2. Theoretical Framework

2.1. Supply Chain

2.1.1. The concept of the supply chain and its importance

Researchers had many point views in regard to the concept of the supply chain, but most agree that supply chain is defined as a functions, activities, and facilities that contain production and delivery of the product or service from raw materials to the end user, including supply, demand prediction, procurement, inventory management, information, quality assurance and scheduling Production, distribution, delivery and customer service. Facilities include warehouses, factories, Operations centres, distribution centres and retail outlets [1].

Ref. [2] defined supply chain as a network of services, products, and information flow that links personal customer relations with the organization and the execution of purchase orders and related processes with suppliers and end customers).

Also [3] defined it as a chain of systematic operations and information related to product and service availability from suppliers through production and distribution till the final customer.

Meanwhile [4] defined supply chain as the material flows and finished products and information related to the chain that adds value in the up and down flow through suppliers, Organization, sales and end-customers.

Ref. [5] describe the chain as the follow of resources and information through complete integration of all members of the marketing channel, starting with suppliers, then producers,

sales representatives, and end users. Finally, Ref. [6] believe that supply chain is the continuous flow of products and services from different sources in order to produce finished products and deliver them to customers for their satisfaction and achieve competitive advantage.

By reviewing the concepts above, the researcher considers that the supply chain means the set of activities which are exercised by the organization starting with "selecting sources of supplies, raw materials, production and distribution, and ending with the customer in order to deliver efficient and effective products and services on time to achieve customer satisfaction.

According to [7]-[1] the reasons that led organizations to pay attention to supply chains are:

- (a) *The need to improve processes.* Because of technological developments, organizations have adopted modern manufacturing practices such as lean production and total quality management. Which resulted in improved quality and cost reduction to achieve value added and thereby maximize benefits for customers and the organization.
- (b) *Increase in external supply levels.* Organizations increase the level of their procurement of materials and other components from external sources rather than producing it where organizations spend a considerable amount on processing and related activities such as packaging, wrapping and sorting.
- (c) *Competition pressures.* The pressure of competition leads to the organization's quest to increase the number of new products and shorten the product life cycle and increased demand upon request for products. Which leads to the adoption of rapid response strategies by industrial organizations and reduction of waiting times.
- (d) *The spread of globalization.* Increased globalization has expanded the physical reach of the chain, as the supply chain management faces many challenges such as the distance of customers, long waiting times for suppliers, and dispersal opportunities of rapid delivery, as well as financial volatility and language and culture differences.
- (e) *The need for inventory management.* Inventory plays a key role in the success or failure of the supply chain, as well as the importance of coordinating inventory levels during supply chain.
- (f) *Increasing the importance of electronic commerce.* The increasing importance of electronic commerce adds a new dimension to the realization of purchase,

production and sale, which makes customers expect to receive their needs and desires from goods and services in a short time.

2.1.2. Requirements for successful supply chain

Ref. [1]-[5] believe that the requirement for successful supply chain includes a number of factors:

- Trust: Trust is a necessary element among the partners in the chain to achieve mutual goals and benefits.
- Co-operation and stability: The coordination and long-term relations with the supplier.
- Reliability: The sharing of information, joint operations, objectives and goals with the supplier as a partner.
- Effective communication: Requires the integration of technology and the means of communication between partners.
- Clarity of the supply chain: This is done by linking chain components for the purpose of accessing data on real inventory.
- Ability to manage the event: Indicates the ability to detect and respond to non-planned events such as delayed shipment or inventory shortage for certain materials.
- Performance measurement: Measuring the performance of the supply chain is necessary to enhance the expected functions of the supply chain and know the problems that arise. There is a different performance tools used in measuring the performance such as: measuring the inventory rotation, delivery time, quality assurance, and customer response time, through this it is clear that the success of supply chain management requires the integration of all areas of the chain from suppliers, factories, warehouses, distributors and retail outlets as well as cooperation, planning and coordination with the partners in the supply chain for achieving efficient operations.

2.1.3. Supply chain strategies

According to [8] there are two main strategies for the supply chain: Vertical Integration Strategy, and External Supply Strategy.

(a) Vertical integration strategy

Ref. [8] refer to vertical integration as an expansion of the organization's potential in offering products and services, and there are two

types of integration: backward vertical integration toward sources of supply and forward vertical integration towards customers and it is done either through the organization itself or with the help of other organization that like to integrate with [8].

Ref. [9] believes that vertical integration is the expansion of the organization's activity in a prior direction of the production process, this mean in the direction of the raw materials or after the production process in the direction of the market. Ref. [10] explained that organization start its operations at the bottom of the chain, such as distribution or acquisition of the supplier therefore, it will be forward vertical integration and when the organization operate at the top of the chain it will be backward vertical integration. vertical integration provides the organization with strategic opportunities in reducing costs, reducing inventory, and reduce scheduling problems, thus, an organization that has a large market share and expertise and excellent managerial skills in acquisition, vertical integration will be appropriate for it. The organization that deals with supplier that is accompanied by technological developments, vertical integration would be risky for it, especially if management could not adapt to these developments. For a vertical integration strategy to be successful, the organization should own a core capabilities necessary to conduct operations [10]. (Fig. 1.) below illustrates a scheme of supply chain strategies.

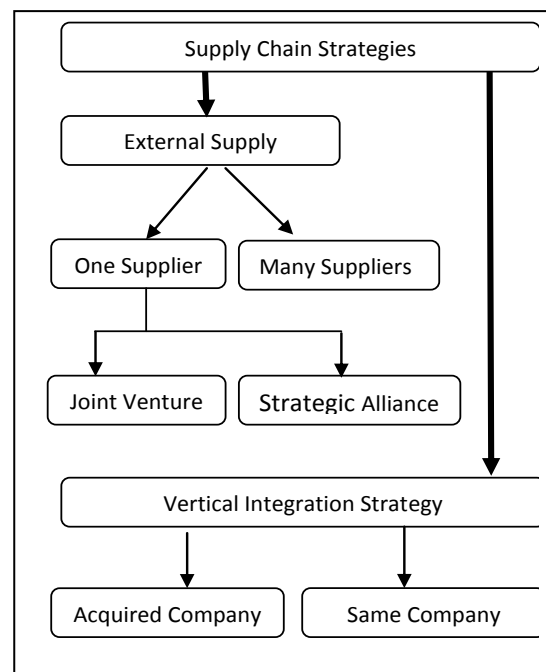


Figure 1. Supply Chain Strategies

(b) External Supplier strategy:

According to [8] external supplier strategy is the process of moving traditional internal activities of

organizations and their resources to external suppliers as a part of the organizations orientation toward the benefit from the competencies, and constitute the core capabilities for organization as one of the necessary elements of success to achieve competitive advantage. The researchers see that there are many changes and developments witnessed by business organizations in the current century, Which should focus on external sources in supply to cope with the rapid changes and developments in the business environment [8].

Ref. [4] adds there are many reasons behind the use of external supply in organizations, they are:

- (a) *Cost savings:* According to the results of one study the use of external supply and costs saving from 10% to 30%.
- (b) *Improving operation and service:* The external supply gives flexibility to production processes allowing the organization to win more orders in order to deliver new products and services to customers.
- (c) *Gaining external experience.* Providing from external sources represent a source of creativity for products improvement, processes and services.
- (d) *Exposure to competitive pressures* and the growing complexity of the environment, which is imperative for organizations access to the global market.
- (e) *Focusing on core competencies:* Outsourcing from outside sources brings substantial capabilities to the supply chain in the organization.

2.2. Competitive Advantage

2.2.1. The concept of competitive advantage

Most organizations practice their work in a highly competitive work environment and the continuous change in the needs and desires of customers and the changes in market conditions. Therefore, organizations must be unique and distinguish themselves from other organizations in the same industry so that they can adapt and survive in the shed of changing environment and achieve their long-term strategic goals, this will happen through the attention and knowledge of organizations to the rules of competition in order to gain the competitive advantage that makes them able to excel competitors ([11]. There are a varied perspectives from writers and researchers on defining the concept of competitive advantage. Brown defined competitive advantage as the performance of the organization that enhances its strategy in achieving the objectives it seeks in achieving the needs and desires of customers by quality, reliability, cost, flexibility and creativity

dimensions [12]. On the other hand, Pitts & Lei argued that competitive advantage is the ability of the organization to created value through the use of the organization internal strengths in the completion of its own work [13]. Finally, Griffin sees competitive advantage as the intellectual capital in the organization which distinguish it from other competitors [14].

2.2.2. Competitive Advantage Elements

The competitive advantage of the organization is based primarily on the organization ownership of different internal assets and resources, together they constitute strengths that characterize the organization from other competing organizations, Upon that we can identified the elements of competitive advantage:

Inputs (organization internal environment): Represented by capital and financial assets, skills, human resources capabilities, as well as experiences that make it able to create an integrated knowledge base to create and develop its products and qualify them to compete with others. For example, British Company Marks and Spencer has achieved competitive advantage by providing outstanding services to its customers and building good relationships with them over a long period of time. These services and good relationships with customers have become the most important and powerful source of competitive advantage against other competitors and there was continuity in investment until it became difficult to imitate by other competitors [15].

Operations: It is all activities undertaken by the organization to convert inputs into outputs (goods or services) and offer them to customers for the purpose of obtaining a high market share and achieving superiority over competitors. Achieving competitive advantage by maintaining employees performance level and raising the learning and skills curve. Over time the increases in learning and training of the working individuals leads to an increase in the level of production and operations within the organization, as a result it leads to reduction in cost, reduce the rates of defects and reach the level of zero defect and here competitive advantage is achieved [11]. Porter presented a model for analyzing organizational activities of the organization by expressing value chain to analyze potential competitive advantage sources. These value chain consists of two sets of activities: (1) Main activities: It consists of five subsidiary activities including: operations, internal and external logistics, marketing, sales, and service and these activities will be responsible for the product launching process to customer. (2) Supporting Activities: That provide input to the organization to facilitate the main activities, these sub-activities

are: infrastructure, human resource management and technological development [13].

Outputs (organization external environment): The status of the organization represent an element for competitive advantage that may distinguish it from competitors. The organization relies on the optimal utilization of opportunities in the external environment in order to achieve excellence in the markets. Also other factors in the external environment can help the organization in achieving competitive advantage such as government legislation and easy entry to new entrants in the industry, for example, tax exemption, import and export and recovery in case of economic collapse that the markets may experience [11].

2.2.3. Elements of Competition

Organizations are required to choose the competitive dimension through which they can achieve competitive advantage in the markets that they operate in, and because of the changing needs and desires of customers over time these dimensions changed. Some organizations use low cost strategy others concentrate on high quality products, while other use the speed of completing customer request and delivery on time. The researcher suggest the following dimensions to sustain competitive advantage:

- *Cost:* Low cost presents one of the competitive dimensions to which organizations must rely on in competing inside markets. It reflects the organization's ability to produce and deliver its products at lower prices compared to competitors working in the same industry [11]. Ref. [8] believe that the organization uses value chain to analyze the total cost of its activity by providing products at the lowest prices, which requires them to increase the quantities of production by increasing the proportion of exploitation of energy and thus achieve a low price advantage that leads to customer loyalty and satisfaction [8].
- *Quality:* Quality is defined as the characteristics that are required to be provided in the final product to the customer from conforming to specifications and suitable for use [2]. Quality can be achieved through three dimensions: (a) The quality of the conformity is the consistency of predefined design and defect free product. (b) Quality design, the suitability of design specifications to customer's requirements. (c) Quality of service, refers to the services that the customer expects after

purchasing the product such as maintenance and assurance which leads to increased product value.

- *Flexibility:* According to [16], flexibility is the ability of organization to respond to changes in size and product mix. The researchers assert that flexibility has become a competitive weapon for organizations because it introduce new products and its ability to modify existing products quickly and respond to customer and desires.
- *Delivery:* Ref. [17] cite that delivery has two dimensions: (a) Delivery reliability, It refers to the Organization's ability to provide its products or services on time, i.e. at the time of the due date of the customer's request. (b) Delivery Speed, the ability of the organization to deliver its products quicker than its competition.

3. Methodology

3.1. Research Methods and Procedures

The researcher used a questionnaire as a tool to measure the study variables prepared for this purpose. five points Likert scale also used to complete the statistical analysis process. (33) questionnaires were distributed to number of department managers at the factory, from which (30) valid forms were returned for analysis. Thus, the recovery rate was 91%, which is considered high. The researcher depended on a number of statistical methods for analyzing the data and testing the hypotheses of the study, they are:

- (a) *Arithmetic mean* (\bar{X}) to find the level of responses to study variables
- (b) *Standard Deviation* (S.D) to measure the degree of dispersion of the values of the responses to their arithmetic mean.
- (c) *Pearson Correlation Coefficient* (R) to measure the relationship between study variables.
- (d) *Simple Regression* (S.R) to know the behaviour of the dependent variable in light of its effect on the independent variable.
- (e) *Correlation Coefficient* (R^2) which is the square of correlation coefficient and it is used to illustrate the variance in the dependent variable.

3.2. Research Hypothesis

The research is based on the following two hypothesis:

1. H0: Vertical integration strategy has no effect on competitive advantage.

- H1: Vertical integration strategy has an effect on competitive advantage.
2. H0: Supply chain strategies has no effect on competitive advantage.
H1: Supply chain strategies has an effects on competitive advantage.

4. Data Analysis and Discussion

4.1. Presentation and interpretation of independent variables

The questionnaire included 24 statements (see appendix 1) divided equally between the two variables: vertical integration strategy and external supply chain strategy which represent supply chain strategies with four dependent variables, which represent the dimensions of competitive advantage namely, (cost, quality, flexibility and delivery) according to an agreement among most researchers and writers.

Vertical integration strategy:

Table (1) shows the mean and standard deviations values of vertical integration strategy.

Table 1. Values of vertical integration strategy

Variable	N	Mean	Std.
Forward vertical integration strategy	30	2.53	.67
Backward vertical integration strategy	30	3.01	.78
Vertical integration strategy (total)	30	2.77	.56

Table (1) illustrates that forward vertical integration strategy mean score was (2.53) which is less than arithmetic mean. With a standard deviation of (.67), this indicates that the factory pays no attention to forward vertical integration and does not expand its activities. The backward vertical integration strategy mean score was (3.01) which is near the arithmetic mean, and the standard deviation reached (.78) this means that the direction of the factory managers are to take advantage of the backward vertical integration and concentrates on raw material sources in its operations. The Overall mean score for vertical integration (2.77) points, which is less than the arithmetic mean and with standard deviation of (.56), this indicates that the factory managers pay low attention to vertical integration and the factory managers had no expansions with regard to marketing and sales outlets.

External supply strategy:

Table 2. Values of external supply strategy

Variable	N	Mean	Std.
Single source	30	2.94	.788
Multiple sources	30	3.64	.72
External supply strategy	30	3.29	.50

Table (2) shows that the single source variable has a mean score of (2.94) which is less than the arithmetic mean and a standard deviation of (.788), this indicates that the respondents agreed that the factory does not rely on one source in its supply chain and the factory has less attention towards the use of individual sources in their supply chain, while the multiple sources variable mean score of (3.64), which is higher than the arithmetic mean and a standard deviation score of (.72), this is a good indicator that the factory uses many resources to achieve its activities in their supply chain. Overall, the external supply strategy variable achieved a mean score of (3.29), which is higher than the arithmetic mean and a standard deviation of (.50), this indicates that the factory managers use external supply strategy in managing its activities based on individual and multiple sources.

4.2. Presentation and interpretation of independent variables

Table 3. The values of competitive advantage dimensions

Variable	N	Mean	Std.
Cost	30	3.08	.68
Quality	30	3.5	.52
Flexibility	30	2.9	.64
Delivery	30	3.4	.98
Competitive advantage (total)	30	3.22	.38

Table (3) shows the mean score for the cost variable was (3.08) which is higher than the arithmetic mean, and a standard deviation of (.68), this means that the factory managers pay significant attention to cost reduction policies by contracting suppliers with low cost resources standard. The quality variable mean score of (3.5), which is higher than the arithmetic mean and a standard deviation of (.52), this shows that the factory managers take into account high quality in their contracts negotiation with suppliers. The flexibility variable has mean score of (2.9), which is less than the arithmetic mean, and a standard deviation of (.640), this indicates that the factory is not flexible enough in producing multiple products or per customer's request produces. In regard to delivery variable, the mean score was (3.4), also it is higher than the arithmetic mean, and with a standard deviation of (.98), which

indicate that factory managers pay great attention to fulfilling its obligations to customers when delivering products, as well as the speed in delivering the products.

Overall, the competitive advantage variable has mean score of (3.22), which is higher than the arithmetic mean, and a standard deviation of (.38), this explains why the factory managers are paying attention to competitive dimensions, especially after the relationship between the competitive dimensions has become a common relationship rather than reciprocal relationship as in the past. This was confirmed by contemporary literatures.

4.3. Testing the hypothesis

The first hypothesis

Table 4. Correlation between vertical integration and competitive advantage

Competitive advantage X / Y	R	R ²	b	F
Vertical integration	.67*	.45	.227	22.9

* The correlation is significant at 0.05.

Table (4) shows that correlation between vertical integration strategy and competitive advantage is a positive relationship with a significant at (.05), and the coefficient score of (45%) which indicates that there are changes in competitive advantage in the factory by (45%) due to the change in the vertical integration strategy as well as the significant linear relationship between the dependent variable (the competitive advantage) and the independent variable (the vertical integration strategy), where the value of F was (22.90) at the significance level of (.05) and (b) indicate that the vertical integration strategy leads to a change in the competitive advantage where (b=.227). Therefore, we rejected the null hypothesis H₀: B = 0 and accepted the alternative hypothesis H₁: B ≠ 0. Table 5 shows analysis of variance ANOVA.

Table 5. Analysis of variance AVOVA for vertical integration

Model	Sum of Squar	Df	MS.	R ²	F	Sig
Regression	28.43	1	28.43	.45	22.9	.05
Residual	34.75	28	1.24			
Total	63.19	29				

from table (5) we observed that the model interprets only (45%) of total deviations and this is seen from the value of the coefficient. Also noted a relative increase in the value of mean squares reaching (1.24). Also a (55%) of the deviations

could not be explained, since they are due to variables other than what was Included in the model.

The second hypothesis:

Table 6. Correlation between external supply strategy and competitive advantage

Competitive advantage X / Y	R	R ²	b	F
External supply strategy	.81**	.65	.352	53.39

** The correlation is significant at 0.01.

Table (6) above shows that the correlation between the external supply strategy variable and competitive advantage is a positively related with a correlation of (.81) at the significant level of (.01). Also noted a linear relationship between the dependent variable (the competitive advantage) and the independent variable (external supply strategy). This lead us to reject the null hypothesis that no effect exists between competitive advantage and external supply strategy. Also this is supported by the coefficient (R² = 65%) this means that the change in competitive advantage is due to (65%) change in the external supply strategy as well. The calculated value of (F= 53.39) at the significant level of (.01). And regression parameter (b) shows change in the external supply strategy by one unit leads to change in competitive advantage by (b = .352). Table 7 illustrates the regression analysis of external supply strategy.

Table 7. Analysis of variance for external supply strategy

Model	Sum of Square	Df	MS	R ²	F	Sig
Regression	37.94	1	37.94	.65	59.39	.01
Residual	21	28	.75			
Total	58.94	29				

It is clear from table (7) that (65%) of total deviations and this is confirmed by the value of the coefficient also noted that the average error of mean square is (.75), this is less than the proportion of the first model and shows true regression model, and there are (35%) of deviations not explained because they belong to other variables not included in the model.

5. Conclusions and Recommendations

The findings show that supply chain is one of the essential topics that organizations should pay attention to because of their role in achieving competitive advantage. Supply chain is part of the

value chain that deals with its main activities and it is possible that each value chain string has its own supply chain.

The results of the statistical tests showed that the independent variable (external supply strategy) received the highest mean score also highest correlation with competitive advantage where the value of correlation coefficient was (.81). There is a moderate positive correlation between the (vertical integration strategy) and competitive advantage where the correlation coefficient was (67%). Also, the results of the regression analysis for (external supply strategy) showed more favourable of the data, which was confirmed by the value of the determination coefficient reached (65%). This signify that (65%) of explained deviations are relative to total deviations as well as relative low value errors of mean square with a value of (.75). The model of vertical integration strategy with competitive advantage did explain only (45%) of the observed deviations relative to the total deviations, with the value of the determination coefficient of (45%), as well the partial increase in the mean squares error at (1.24). Finally, The results of simple regression analysis showed rejection of the null hypothesis and acceptance of alternative hypotheses and there is significant effect between supply chain strategies and competitive advantage. The external supply strategy ranked first in impact.

Based on the result of this research, the researcher came out with a number of recommendations:

- (1) The company top managers should design efficient and functional supply chain model if they are pursuing to achieve profits and reduce costs, and adopt a creative chain model if they aim to achieve rapid response to customer demands and high diversification for their products.
- (2) They need to adopt competitive standards in the selection of suppliers (cost, quality and fast delivery).
- (3) Emphasize the need of building a long-term relationships with suppliers and direct the relationship towards partnership.
- (4) Top managers of the company must used the external supply strategy, and focus on multiple sources of procurement because it galvanize continuous improvement in operations as a result of trade-offs with suppliers.
- (5) Emphasize on adopting communication and information systems in building relationships with the supplier, which contributes to the selection of competent suppliers.

- (6) The Company managers must pay more attention to the competitive dimensions, especially flexibility through opening new product lines and product diversification.

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