IMPROVING THE EFFICIENCY OF SUPPLY CHAINS IN SMALL BUSINESSES

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Abstract: this article describes the main views on the activity of supply chains of small business entities, the specific characteristics of supply chains of small business entities, the risks that arise in supply chains, and models of supply chains. Scientific and practical recommendations on the organization of supply chains in small business are given.

Key words: supply chains, commodity movement, supply chain management, suppliers, distributors, foreign trade.

Introduction

Development of small business in Uzbekistan is one of the priority economic policies of the state. All legal, economic and financial conditions have been created for the development of this sector. According to the 29th goal of the development strategy of New Uzbekistan for 2022-2026, the goal is to create conditions for the organization of business activities and the formation of permanent sources of income, to increase the share of the private sector in the GDP to 80% and the share of exports to 60%. Establishment of 200 new industrial zones and development of the system of business incubators in the republic. Creating more favorable conditions for the development of entrepreneurship in districts with difficult conditions. Tasks such as reducing state participation in the economy and opening a wide path to the private sector, expanding the introduction of free market principles in economic relations have been defined.

Small business entities are also widely entering the processing sector. Supply chains are critical for small businesses producing consumer goods. Because small business entities do not have their own distribution networks that provide raw materials. They have limited financial resources to form their own sales channels even when offering finished products to the market.

Based on this, creation of supply chains for small business entities, risk assessment in them is one of the urgent issues.

Analysis of literature on the topic

In the early 1980s, the term "Supply Chain Management" began to be used in the United States. The first use of this term was proposed by the American designers K.Oliver and M.Webber to be considered within the framework of an integrated strategy by calling the supply of primary raw materials to production enterprises and the management of supply chains of finished products from production enterprises to the final consumer. [8]. K. Oliver and M. Webber formed the concept of business logistics as an integral tool of business management in the organization of material flow, and also showed that there are significant fundamental differences in the functions of marketing and logistics in distribution channels [8].

Langley C.J. researched a wide range of activities related to the effective organization of material flow movement in the supply of raw materials in the product production line and conducted relevant research on the formation of elements of supply chains[15].

In her research, Jill Bowers notes that supply chains exist in many forms, but the most common structure includes four distinct entities:

Suppliers. These businesses provide the materials needed to create a product, whether it's raw materials or individual parts of a finished product.

Producers. This stage of the supply chain involves bringing together all the parts provided by the suppliers to create the finished product.

Distributors. These businesses store and sell the finished product in a physical store or through an online store.

Buyers. Consumers create demand for products and ultimately influence product quantity and overall supply chain structure [1].

Small business supply chain issues and solutions are also explored by Karen G. Mills, Elisabeth B. Reynolds, and Morgane Herculano. They believe small and medium-sized companies are critical to American supply chains, but they lag behind in productivity and technology adoption. If the government and industry can help these small supply chain firms to upgrade their technology, it will greatly enhance the supply chains [9].

The role of stock in product supply chains, including the delivery of primary raw materials to production enterprises, the principles of stock creation, adaptation to supply chains in stock management, and issues of integration and coordination of logistics activities into key solutions S.James, F.Donald, D. Woodlar studied in his research [7].

In recent years, specialists from Uzbekistan have been conducting a number of scientific research works on logistics. In particular, N.Babayev is conducting a number of studies on inventory management, effective management of material flow in the logistics system [2], designing logistics service [3, 4].

A single business cannot coordinate every part of the supply chain, so some supply partners must be chosen. The role of wholesale trade in supply chains, the cooperation of logistics companies with wholesale trade was also studied in the works of D.H. Kholmamatov, a young scientist from Uzbekistan [10, 11, 14]. In particular, marketing logistics and its business processes are extensively studied by D.H. Kholmamatov [22, 23].

Research methodology

When writing the article, an attempt was made to reveal the problem of logistics operations performed in small business supply chains, the risks associated with them, using analysis and synthesis methods to identify and manage risks. The study also used monographic observation, empirical data analysis, and abstract methods. The necessary information for the research was mainly obtained from foreign literature, statistical and legal databases.

Analysis and results

The small scope of activity of small business entities, the small volume of purchases, the inability to fill the channels of goods movement with sufficient material resources create problems in the organization of supply chains. Small businesses may not have independent supply chains. In many cases, small businesses use supply chains that serve large businesses.

Small business entities do not have their own independent warehouses, transport and other equipment.

However, the expansion of the number of connections between economic entities, the complexity of the movement of material resources significantly affects the activity of small business entities. Due to the increase in the complexity of supply chains, including the complexity of the spatio-temporal configuration of goods distribution systems, the ability to manage supply chains is reduced and the level of impact of risks on the economic efficiency of supply chains is increasing.

All of the above undoubtedly makes the question of ensuring the stability of supply chains, increasing their safety and reliability urgent.

Supply chain management is a set of management approaches and information tools that ensure the effective integration of suppliers, manufacturers, intermediaries and sellers.

Taking into account market requirements and customer service wishes, such a logistics organization allows to ensure the availability of the right product at the right time, at the right place, with minimum costs.

In order to effectively apply modern concepts, methods and technologies of supply chain management, small business entities require professionally trained and motivated personnel, which are available in limited quantities.

A lot of time, money and material resources, clear decisions and, most importantly, initiators of changes are required to eliminate the factors that have negative consequences in the implementation of foreign trade activities of small enterprises.

It should be noted that the concepts of stability and efficiency of supply chains complement each other: "the efficiency of supply chains is characterized by a high level of economic efficiency and the required level of stability." Provide high level

The stability of the supply chain reduces its maintenance costs and, as a result, increases the economic efficiency of the entire logistics system, which in turn helps to further increase the stability and efficiency of goods distribution systems.

In order to effectively organize supply chains without the harmful consequences of risks, it is necessary to ensure the stability of the supply chain.

Sustainability is understood as the ability to achieve economic efficiency in terms of the interaction of the supply chain with the external environment. The stability of the supply chain is determined by the balance of disruptive and controlling actions at each moment in the dynamics of the supply chains.

From the point of view of added value, the sustainability of the supply chain can be defined as the ability to recover and adapt to changes in the external and internal environment, which leads to the creation of added value for all stakeholders, final consumers, shareholders. state and society as a whole.

Supply chain sustainability refers to maintaining the optimal flow of supply chains under the influence of third-party factors. External factors are unplanned costs arising from risks.

Small business supply chain sustainability is characterized by the fact that small business supply chain consists of a small number of intermediaries directly involved in the organization and implementation of the movement of goods. Conversely, when a large business provides the transportation component of the supply chain independently.

It can be concluded that small enterprises often have limited or excessive number of supply links, which makes it difficult to manage the logistics process, causing costs to maintain the supply channel. From this characteristic comes the susceptibility of small business to the impact of changes both from the external environment and from the internal environment of the supply chain. Based on this conclusion, we introduce a definition of small business supply chain sustainability.

The stability of the supply chain of a small business is the provision by a small business of minimum costs for maintaining the supply chain in a constantly changing external environment, with an optimal number of participants (intermediaries) of the supply chain with high reliability indicators. necessary for the operation of the supply chain.

The stability of the supply chain is achieved by organizing the optimal model of the supply chain, in which the best option of the supply chain operation can be achieved by reducing the risks associated with the chain, reducing the time spent on the implementation of foreign supplies. improve the quality and reliability of the trade deal, supply chain.

The supply chain is a complex network structure that includes n number of participants at different levels, taking into account the wide geography of foreign trade activities and logistics facilities. The complexity of the structure of the chain structure affects the management of the supply chain. For effective supply chain management, the number of participants should not be excessive. An optimal supply chain structure facilitates faster integration across the supply chain.

Quality and reliability of the supply chain comes with choosing the most cost-effective supplier while guaranteeing the fulfillment of the deal. To do this, you need to follow simple criteria such as efficiency, professionalism, stability when creating a supply chain. With the constant change of participants in the chain, the efficiency of the chain decreases.

The stability of the supply chain cannot be achieved without maximally eliminating the factors that provoke an unstable situation in the external and internal environment of the supply chain, which are risks. Risk mitigation is one of the main objectives of supply chain sustainability, which can be achieved through close cooperation of supply chain counterparties and continuous information exchange aimed at forming clear market views between them.

Also, by reducing risk, small business supply chain sustainability can be achieved by transferring risk to a third party.

Due to the achievement of supply chain stability, the enterprise receives a positive economic effect from the foreign trade deal.

The entire logistics system of a small business can be represented as a serial parallel supply chain model.

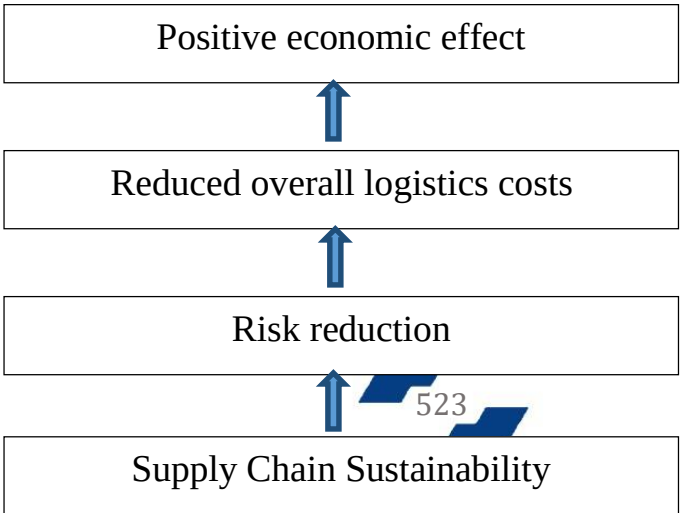


Figure 1. Achieving positive economic impact through ensuring the sustainability of the supply chain

To understand the stability of the logistics system, the order failure formula was applied to the serial-parallel model as a parameter of quality and reliability:

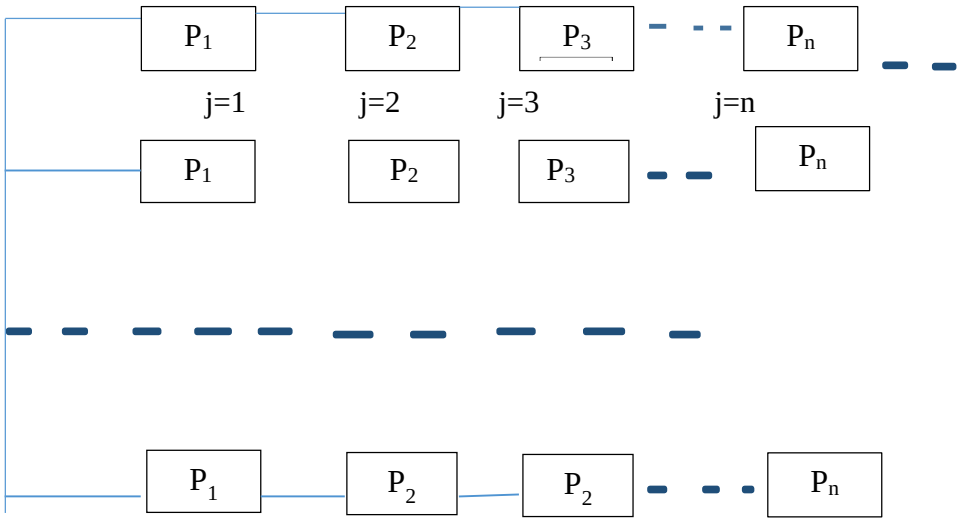
$R_0 = 1 - P(1 - PR_j)$, $m \le n$, if $X_{ij} > 0$,

where P_0 is the failure demand (probability of order fulfillment); m - the number of supply chains; n - number of suppliers; P_j is the reliability requirement of the j-th supplier;

X_{ij} is a binary variable (in other terminology, indicator terminology, a selection variable) that takes the value 0 (potential participant not included) or 1 (included).

The variable xij is used to indicate the formation of m chains of n channels.

The expression in parentheses is taken as the risk (that is, the damage caused by the operation) defined by each supply chain and Qi. Each supply chain risk (Qi) is defined as the sum of the product of the risk probability and the amount of damage caused. We assume that the amount of loss is proportional to the amount of its monetary equivalent, which is used to determine the weighting factor resulting from j-risk. It should be related to the magnitude of the total damage. As a result, we get a relative value similar to the damage weight for j-risk.



Rice. 2. Series-parallel supply chain model

For parallel circuits with a fault value of each Qi, the stability of the entire system is determined by the expression (1 – RQi).

We derive a modernized formula for determining supply chain stability:

R0 =1 – PQi;

Qi = ∑Uj Rj ,

here

R0 - level of stability of the supply chain;

Qi - i-supply chain risk;

Uj is the weight coefficient of damage;

Rj is the level of risk probability.

From the series-parallel model of the supply chain and the reliability formula applied to it, it follows that the more series-parallel the supply chains are, the more reliable the network is. It follows that the more suppliers (or delivery channels) of a particular product in the logistics system, the higher the probability of meeting the needs of the final consumer. In reliability theory, this is called a surplus because it is necessary to fulfill a favorable set of circumstances and a stock order.

It has a significant number of channels for the delivery of this product. In conclusion, it can be said that as the number of supply channels decreases, the level of reliability decreases, the supply channel becomes less flexible and cannot quickly respond and adapt to changes in the environment.

Since the stability of the system depends on the reduction of risks, the results of the survey were used for practical application. 44 people participated in it.

Respondents were entrepreneurs with some experience in the field of foreign trade and those without experience, but potentially ready to develop their business outside the republic due to theoretical training. Participants were asked to rate the importance of a risk, where the importance of a risk was considered the likelihood of realizing/manifesting that risk. The purpose of this study is to identify the types of risks that often lead to costs for an inexperienced entrepreneur who does not have a clear risk management strategy. The risk assessment was carried out on a 10-point scale, where 10 is the strongest probability of risk that requires maximum consideration, 1 is an insignificant risk that can be ignored.

Table 1

Average score of survey results by risk groups

№	Name of risk group	Average score
1.	Contract risks	5,8
2.	Financial risk	5,47
3.	Forwarding risks	4,6
4.	Document management risks	6,76
5.	Risks of customs control and clearance	5,26
6.	Political risks	5,3

According to the results of the analysis, it is clear that the respondents consider financial risks in international cargo transportation as the most important. In second place are the risks related to customs control and clearance, followed by the risks related to the safety of the cargo, that is, the risks of forwarding. In 4th place is political risks with an average score of 5.3. Documentary support of properly formalized cargo and contract risks, in the last positions.

It should be noted that no hazard received or was close to the maximum score (10 points) when calculating the average value.

In this regard, it can be concluded that the majority of respondents do not consider the possibility of applying a risk management strategy.

The weight coefficient of damage for each type of risk is determined by ranking the overall results of the survey (Table 2).

table 2

Damage weight for each type of risk

№	Type of risk	Risk	Color	Weight coefficient	Weights

		score		according to rank	
1.	Contract risks	5,8	2	5	0,24
2.	Financial risk	5,47	3	4	0,19
3.	Forwarding risks	4,6	6	1	0,05
4.	Document management risks	6,76	1	6	0,29
5.	Risks of customs control and clearance	5,26	5	2	0,09
6.	Political risks	5,3	4	3	0,14

Conclusion

In order to survive, small businesses need to integrate existing resources in supply chain management, which ensures a stable system climate and the costs of maintaining supply chains are distributed proportionately among its users. With this form of organization of the logistics system of a small business, conditions are created for the availability of an optimal number of supply channels that maintain the level of reliability and reduce costs associated with channel maintenance for each user.

In order to survive, small businesses need to integrate existing resources in supply chain management, which ensures a stable system climate and the costs of maintaining supply chains are distributed proportionately among its users. With this form of organization of the logistics system, conditions are created for the optimal existence of small business entities

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