Article **Journal-Economic Systems**
June, 2022 Vol.6 No.10 9-13

Comprehensive diagnosis of productivity to a freight transportation company in the city of Villahermosa, Tabasco, Mexico, for an improvement proposal

Diagnóstico integral de la productividad a una empresa de autotransportes de carga en la ciudad de Villahermosa, Tabasco, México, para una propuesta de mejora

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DOI: 10.35429/JES.2022.10.6.9.13 Received March 12, 2022; Accepted June 30, 2022

Abstract

The importance of marketing generates economic growth to people involved, in this way it also brings competitiveness in the market, bringing improvements in the innovation of new tools that facilitate the work of human being, also obtaining benefits such as continuous improvement and a better Economy for society, the present project aimed at the proposal of a marketing logistics model for the producers of Havana Chile of Villahermosa Centro. With the purpose of improving competitiveness in the state, in the same way to offer new training to the farmers of the Havana Chile, the diagnostic tools were designed according to the information obtained from the analysis of the interviews. Likewise, the results obtained from the analysis and development of the design of the logistics method of marketing will be attached, improving the supply chain.

Productivity, Competitiveness, Measurement

Resumen

La importancia de la comercialización genera crecimiento económico a las personas involucradas, de esta manera también trae competitividad en el mercado, trayendo mejoras en la innovación de nuevas herramientas que faciliten el trabajo del ser humana, obteniendo también beneficios como la mejora continua y la una mejor economía para la sociedad, el presente proyecto dirigido a la Propuesta de un modelo de logística de comercialización para los productores de chile habanero de Villahermosa Centro. Con el propósito de mejorar la competitividad en el estado, de igual forma ofrecer una formación nueva a los agricultores del chile habanero, las herramientas de diagnóstico se diseñaron conforme a la información obtenida del análisis de las entrevistas. Así mismo se anexarán los resultados obtenidos del análisis y el desarrollo del diseño la del método logístico de comercialización, mejorando la cadena de suministros.

Productividad, Competitividad, Medición

Citation: CASTRO-DE LA CRUZ, Jucelly, CHICO-JIMENEZ, Akari Fernanda, GALINDO-SÁNCHEZ, Eduardo Enoch and ELISEO-DANTES, Hortensia. Comprehensive diagnosis of productivity to a freight transportation company in the city of Villahermosa, Tabasco, Mexico, for an improvement proposal. Journal-Economic Systems. 2022. 6-10: 9-13

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Introduction

This project is focused on the "Proposal of a Logistical Marketing Model for the Habanero Pepper Producers of Villahermosa, Centro". It develops different documentary research that serves as a reference to the context of the market in the commercialisation of habanero peppers, reflecting the changes in the environment within the industry and its current state.

It also identifies the distribution channels, which are an important factor in marketing, as they are the basis for the delivery of the product to the direct customer. The different logistic models were also analysed and the one that best suits the proposal of the present project was selected.

The CROSS-DOKING model is a decentralised methodology that adapts to the improvement proposal and also to the recommendation of the implementation of a cooperative. Bringing tangible and intangible benefits for producers, the area and society in general, generating a market that can be expanded to market on a large scale as in different states of the republic and export to other countries.

This model brings great benefits and advances to the producers, ensuring that they obtain knowledge and tools, such as a business model, a logistical model of marketing and implementation of organic products, providing as a benefit the quality of the final product.

Methodology

The following is the structure with which this research was carried out, which is developed in different stages, complemented with different tools to achieve the objectives and the proposed goal of this research.

– First stage: information was collected from various electronic sources to obtain a more global context on the subject.

– Second stage: two interviews with the producer in which the current problems of the area were identified, through this technique the next stage was developed.

– Third stage: a SWOT Matrix was developed, which consists of an evaluation of the strong and weak factors that together diagnose the internal situation, as well as its external evaluation, which also provides an overview of the strategic situation determined.

– The fourth stage is the development of the logistic marketing model, where the cross-docking model is used. Cross-docking is a logistic distribution system in which goods are received through an inbound element and are immediately ready for shipment instead of being stored.

– The fifth step is the design of the business model canvas, a strategic management tool that provides insight into the key aspects of a business, how they relate to each other and how they compensate for each other.

Introduction to the study method

The Integral Diagnosis will allow a visualisation of the current situation of the producers, identifying their advantages and disadvantages.

In order to carry out this diagnosis, a tool was used to gather the necessary information, with the purpose of obtaining an external and internal analysis of the producers.

The Measurement Instrument consists of six variables to be evaluated, which are:

– VARIABLE 1. Economic: With this factor, the problems that limit producers to obtain the necessary capital for production are identified.

– VARIABLE 2. Political: This factor analyses how involved the government associations are in the development and support of the habanero chilli cultivation.

– VARIABLE 3. Environmental: This factor will highlight the climatic difficulties that most affect the producers.

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– Technological VARIABLE 4. Technological: In this factor it is expected to obtain information about the development of innovation and the use of new technologies to make the work easier for the producers.

– VARIABLE 5. Social: The segment and the situation of the relationship with the clients will be identified.

– VARIABLE 6. Cultural: This factor relates the social variable to the different types of people who consume the product based on their customs, creation of products derived from the habanero chilli, among other aspects that define it.

Segmentation for measurement

According to (SAGARPA, 2015), the states of Yucatan with 41% and Tabasco with 32%) produce a little less than three quarters of the national production. The same report also shows that Tabasco is a producer identity that supplies the same state and the state of Veracruz.

– Having as data the following:

		Prices ($/kg)			Marketing Margin		
Entity Producer	Supply center and monitored city	Producer	Majority	Consumer	Majority	Retail	Total
Campeche	Campeche, Camp.	9.61	35.00	50.53	25.39	15.53	40.92
Navarit	Durango, dgo.	29.41	80.13	93.98	50.72	19.77	70.49
Yucatan	Monterrey, NL.	18.88	34.61	54.00	15.73	19.39	35.12
Yucatan	Oaxaca, Oax.	18.88	30.25	40.00	11.37	9.75	21.12
Quintana Roo	Chetumal, Q.Roo	24.52	48.75	42.50	24.23	-6.25	17.98
Tabasco	Villahermosa, Tab.	13.64	22.19	34.05	8.55	11.86	20.41
Tabasco	Veracruz, Ver.	13.64	36.88	29.75	23.24	-7.13	16.11
Yucatan	Merida, Yuc.	18.88	28.03	58.78	9.15	30.75	39.90

Figure 1 Marketing margin 2015
Source: (SAGARPA, 2015)

Today the (SAGARPA, 2022), reports that most of the habanero chilli harvest that was marketed in the main national markets came from three entities: Quintana Roo, Veracruz and Yucatan. Villahermosa was found to have the lowest consumer price of $68.5 per kg, with the lowest marketing margin of $45.04 per kg.

Measurement Instrument

The present instrument was designed considering the information collected in the interviews applied to the producers.

In applying the measurement tool the researcher developed the SWOT matrix, which is supported by the response of the interviewee.

This tool was used to analyse the internal and external contexts of the production environment, in which strengths and opportunities are identified in order to maximise them for the benefit of the producer.

		STRENGTHS		WEAKNESSES
Internal factors	F 1	Quality of habanero pepper	D 1	Cheap Sale of the Product.
	F 2	Proximity to Markets and Points of Sale in the área	D 2	Disinterest in marketing
	F 3	Use of Inputs based on Organic Materials (Local)	D 3	Lack of Economic Investment
	F 4	Experience in production and construction of safe irrigation and growth areas	D 4	Scarce Technology in Cultivation and Production
	F 5	Cultivation areas along the main road	D 5	Third Parties in the Supply Chain
	F 6	Land availability.	D 6	Low and Unsafe Areas
	F 7	Self-regulation of Production Quality	D 7	Inconstant Production
		Average		Average
		OPPORTUNITIES		**THREATS**
Factores externos	O 1	Advice to producers on Certifications and Economic issues.	A 1	Producers with lower prices per kg
	O 2	Market supermarket chains, central de abasto, other states and even other countries.	A 2	Low Demand In The Area
	O 3	Application of new production techniques	A 3	High Prices in Production Inputs
	O 4	Improve cultivation and harvest conditions	A 4	Plant annihilating pests
	O 5	Facilitate access to the Cultivation and Point of Sale areas	A 5	Expensive distribution
	O 6	Access to Government Support	A 6	Infertile Seasons of Production Land
	O 7	Create a cooperative in Havana Chile	A 7	Preference in government support
		Average		**Average**

Table 1 SWOT Matrix
Source: Author's perception

Results and interpretation

After having applied the self-diagnosis tool, an analysis of the scores obtained for the factors was carried out. The following results were obtained:

Summary	Summary	Percentage
Strengths	84	18.53%
Weaknesses	129	29.73%
Opportunities	115	40.00%
Threats	80	11.73%
Total	750	100.00%

Table 2 current situation index items
Source: Author's perception

This table reflects the values that you saw each of the factors giving an overall value of 750 points that this value makes up 100%, which brings as a benefit that each index reflects the percentage of affectation, information reflected in the graphs 1. In the following graph is observed in more detail that the highest percentage is the factor of opportunities, and the second is the weaknesses, with this it is established that the opportunities established in the context analysis of the SWOT matrix can be maximized more and achieve minimize the negative parts that are the weaknesses and threats, achieving the proposed strategies successfully.

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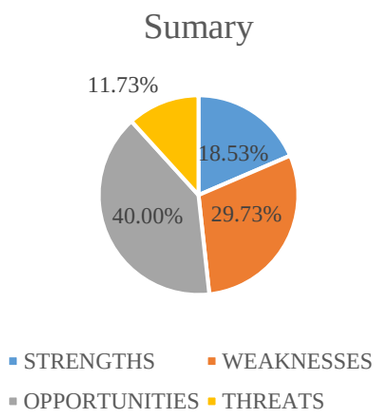


Graph 1 Summary
Source: Author's perception

To continue with the analysis, a situational index study was carried out, with which a perspective of the current market conditions of the producers was obtained using the following formula: ((Opportunities+Strengths) (Weaknesses+Threats))/((Strengths+Opportunities)+(Weaknesses+Threats))*2, which gave a situation index of -4.90%, and when observing table 9 it is positioned in a situation of equilibrium. This is shown in the following table:

Maximum	Mínimo	Maximum
Very unfavorable	-200%	-100%
Unfavourable	-100%	-30%
Balance	-30%	30%
Favorable	30%	100%
Very favorable	100%	200%

Table 3 Current situation
Source: Author's perception

This means that the producer, although he does not have a sufficient base to sustain himself, continues to produce a certain amount of habanero peppers to keep himself in the market.

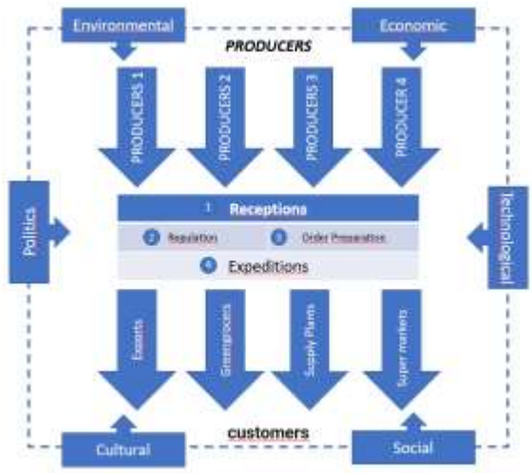
Proposal and interpretation

The CROSS-DOCKING model establishes the loading units, which are prepared and organised by the producers with the final customer in mind. The operation is limited to receiving the production and dispatching them without further intervention by the warehouse workers.

Phases of the operation:

1. Scheduling of the distribution by the suppliers.
2. Reception of the goods in the warehouse.
3. Registration
4. Review of the cargo received
5. Loading onto trucks for distribution

The aim of this model is to provide producers with a more convenient way of marketing by promoting a habanero chilli cooperative as an intermediary, which would be a centralised distribution centre that would generate pre-established orders, thereby achieving quick delivery orders, as the product has a very short life cycle.



Graph 4 CROSS-DOCKING
Source: Author's perception

Relationship of environmental variables to the logistics marketing model

These factors could have a great impact on the model as they cannot be controlled. Having them identified helps the people involved in the development of the model and the cooperative to foresee certain effects and to create quick resolutions, as well as to know how to take advantage of them and obtain benefits from them.

The technological environment is a changing factor that always brings greater benefits as it is involved in different areas of the model, such as new tools implemented in the reception of goods, preparation of the goods themselves, continually innovating new logistics applications and software that help to make the processes easier and more efficient, as well as maintaining better control of the activities.

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The political environment has an influence in the areas of regularisation and expeditions, since these are the ones that establish the quality norms, having as an objective a standard and maximum quality level, achieving that the production is adequate for local and international consumption, it also has as a development the opening for exportation to other countries and obtaining the appropriate permits and certifications.

The economic environment, this is a factor that defines the amount of production of each producer, since depending on their capital is their capacity to produce habanero chilli, with the correct care products, using services that benefit in quality, means an investment and to obtain it is also necessary the economic contributions that the political environment establishes. This also provokes the motivation to continuously plant habanero peppers in our state.

The environmental environment, this variable is one of the most important to study since this is the one that defines the total production quantity of a farmer, the climate is changeable and is different for each geographical area in which the habanero chilli is grown, to maintain control over this in the canvas model certain strategies developed to obtain control over the temperature and the correct growth of the plants are recommended.

The social and cultural environment, these go hand in hand, they are developed through daily consumption and internationally, defining the demand for this product, for this it is important to make a disclosure of its consumption in various products, managing to obtain the support of consumers, one of the recommended strategies for this is to be a participant in cultural events, in the locality and in other states, so the quality and taste that defines the habanero chilli from Tabasco will be known to other states, recognising the effort and quality that the farmers of this product have obtained.

This model is complemented by a business model, one of the most important problems when marketing habanero peppers is not knowing how to make beneficial deals or agreements for the farmers. For this reason, it is suggested that those interested be trained in the sale of their harvest, giving a fair value to the labour used, time spent, as well as the materials and inputs invested in the production.

The following is the complement to the model:

Graph 5 CANVAS
Source: Author's perception

Conclusions

In this study, it was possible to identify the errors that the producer uses in the market, also finding that the main barriers come from the absence of transport and fixed buyers, in the same way the economic variable with which the hypothesis of this project is verified "The lack of financing for the processes of cultivation and commercialisation have caused the low production and producers of habanero peppers". Either because of the low capital of the producer or the lack of governmental support directly and indirectly affects the production processes.

The proposal of a logistic model of commercialisation for the producers of habanero peppers in the municipality of Centro Tabasco, the design of this centralised Cross Docking model benefits the producers to organise better logistic processes of their harvests, it is verified in the applied studies and in the acquired results that the commercial logistic model will benefit the producers in their process.

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