

ORGANIZATION OF THE FOOD DISTRIBUTION SYSTEM IN THE CONTEXT OF SUSTAINABILITY ACCORDING TO INSTITUTIONAL DIMENSION

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Abstract

Sustainable development is playing an increasingly important role in today's society, and it is essential for companies seeking to meet the needs of the market to pay increasing attention to the application of sustainable development principles in their operations. The enterprise food distribution system is one of the essential activities ensuring the company's competitiveness in food sector, which ensures timely production and quality of customer service. Nevertheless, the compliance of the company's distribution system with the principles of sustainable development is a major challenge for most companies. The company's goal of sustainable development must not forget the main goal - the pursuit of profit; therefore, it is necessary to clearly define the main strategic activities, criteria and evaluation system that would help identify the most suitable solutions for the company to meet both sustainability and profitability expectations. To this end, it is necessary to integrate the institutional dimension and to analyze the food distribution system at the strategic level.

The paper analyses the impact of sustainable development on food distribution system to determine which activities are most responsive to sustainable development and company's goals. The main purpose of the model, presented in the paper, is to help the business sector integrate sustainable development principles effectively in food distribution system, considering the significance of ongoing factors in the system for sustainable development. As study result presented evaluation of international company food distribution system in the context of sustainability according to institutional dimension by identifying value of criteria's and evaluation main activities in a company distribution system.

Key words: distribution system, sustainable development, institutional dimension, Simple Additive Weighting (SAW).

Introduction

In the modern concept of sustainable development, the institutional dimension is rarely singled out as a separate component of sustainable development. Certain aspects of this dimension are included in the economic, social or environmental, technological fields, so it is very difficult to identify a clear dividing line between all the components of sustainable development. Research has shown that a company's social, economic, environmental issues can be directly integrated only at the institutional level, so the concept of institutional dimension was proposed more than a decade ago (Spangenberg, 2014). Institutional importance has also been emphasized by other authors (Bleischwitz, 2003; Baumgartner & Rauter, 2017), who argue that it is managers who are responsible for political decision-making in an organization, eco-efficient innovation, performance control, and regulatory mechanisms for the social well-being of its members and society.

The institutional dimension can be analyzed from several aspects of external interaction - the interaction of the enterprise as an entity with state and public institutions or as an internal interaction by involving the integration of the principles of sustainable development into the management of the company's activities. Strategic management is a specific and distinctive feature of any company. This article analyzes the institutional dimension through the prism of internal interaction by modeling the institutional

dimension actions that unfold in the food distribution system strategy development model.

Engert *et al.* (2016) believe that the institutional dimension at the enterprise level could coordinate other dimensions of sustainable development and thus accelerate the implementation of sustainable development provisions in the business environment. By exercising ethical and moral principles, companies not only exercise the powers, rights and responsibilities conferred on them by government, but also create an environment in which sustainable development initiatives are launched.

In order to identify the institutional dimension of the food distribution system in the sustainable development strategy model, it is necessary to identify the main components of strategy development and management in the business sector enterprise in organizing food distribution system.

Analyzing the company's goals and their relationship with sustainable development Danciu (2013) states that sustainable development should be perceived as the company's most important goal, but this contradicts the basic business principles, because the company's priority goal is to make a profit. Thus, if the implementation of the sustainable development strategy starts to contradict the profitability of the company, there would be a contradiction regarding the need and possibilities of sustainable development integrity in the process management of the company. Results can only be achieved by combining these two

groups of objectives and integrating sustainability into the company's strategy, but not by developing a separate sustainable development strategy. It should be noted that when analyzing the expression of sustainable development at the level of company strategy development, the institutional dimension becomes equivalent to other sustainable development dimensions and must be integrated into the entire process management of the company.

Baumgartner (2014); Mohammed, Muff (2015) argue that the key question for modern business is not why a firm should be sustainable, but how a firm can be sustainable. Taylor (2013) emphasizes the integration of sustainability into the vision, mission and value system. The author proposes to integrate the principles of sustainable development in a systematic way, starting from the vision and goals, gradually moving to planning, decision-making and strategy adjustment.

Problem of the research. The main goal of business enterprises is to make a profit, but in the face of globalization, the sustainable development of enterprises is playing an increasingly important role. Therefore, a clear problematic question arises - how can a company properly integrate the principles of sustainable development at the strategic level in order to achieve operational efficiency of the food distribution system while increasing the company's sustainability?

Aim of the research. To develop and test in practice a selection of alternative decisions of the strategy model of food distribution system in the context of the institutional dimension using multi-criteria evaluation method.

Objectives of the research:

- to review the basic theoretical aspects of organizing food distribution logistic system in the context of institutional dimension;
- to create a model and an evaluation tool of strategy selection according to the expression of the institutional dimension in the food distribution system;
- to test in practice the suitability of the tool developed in a food distribution company in the context of institutional dimension.

The solution to this problem is complex and requires a systematic approach. A systemic approach does not mean solving all aspects of a complex problem at once, but it does allow us to see the big picture: to break it down into separate components, to analyze them, to highlight the most important, and finally to integrate them into a whole.

The selection of strategy must take into account the impact of its implementation in increasing the company's ability to meet the requirements and expectations of stakeholders. With regard to the content

of this component, it is proposed to choose a strategy based on the results of the analysis and evaluation of strategic alternatives according to the criteria (Matwiejczuk, 2013; Lichocik & Sadowski, 2013; Saufa *et al.*, 2016). This issue should be considered from a slightly different perspective, suggesting that the results of the analysis and evaluation of the institution's SWOT and its operational problems be taken into account in the design and adoption of the strategy. In addition, when analyzing and evaluating strategic alternatives, they suggest taking into account the potential of the company resources and the response of the institution's stakeholders to the implementation of the strategy. Hadas (2014) reveals the essence of decision-making and decision-making in implementing strategic goals, provides strategy selection according to an integrated criteria (acceptability to the institution's stakeholders, decision-makers and their implementers, compatibility with the institution's mission, values and philosophy).

Summarizing the various scientific opinions, it can be stated that most of them emphasize the need to analyze and evaluate strategic alternatives according to various criteria. The synthesis of diversity in terms of the set of tasks of the component under consideration and their content allows defining the following generalized content of the proposed component of the institution's strategic planning model: compilation of strategic alternatives, the results of the analysis and evaluation.

Materials and Methods

In order to more clearly identify and systematize the authors' information, a model for the development of a sustainable strategy of the food distribution system is formed, which is formed considering the expression of the institutional dimension in the strategy development phase. The content of strategic planning for sustainable development consists of different activities from analysis till searching for improvement opportunities (Figure 1).

The developed model is of a flexible type in order to achieve continuous process management and improvement opportunities.

By developing the strategic management of enterprises and integrating the main components of sustainable development, the model is constructed in order to reveal the main strategic decisions in the context of institutional dimension.

The model is conceptual and starts with classical strategic decisions and management. In order to reveal the institutional dimension in the preparation of the strategy, the first step is the analysis of the main factors that are implemented in the company under the institutional dimension.

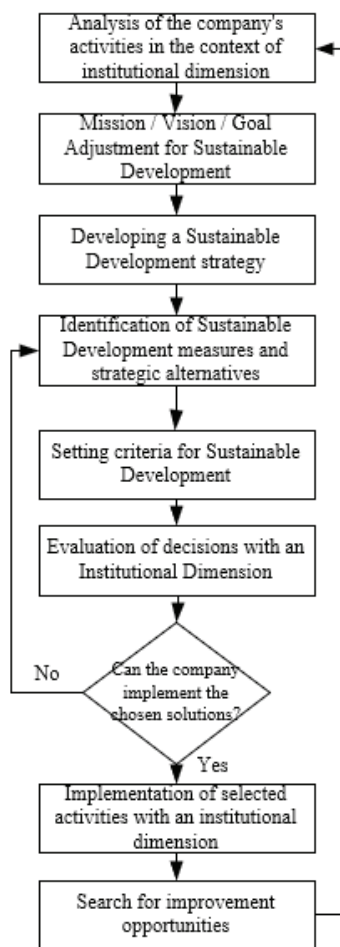


Figure 1. Model of food distribution system development in the context of institutional dimension.

After clearly defining the company’s goal, vision, mission, objectives and the possibilities of their links with sustainable development, the process of identifying and evaluating sustainable development measures / strategic alternatives is transitioned.

Once alternatives to strategic solutions have been developed (Table 1), they need to be compared and evaluated. This requires evaluation criteria. A criterion is defined in the literature as a measure of evaluation, a quantity expressed quantitatively or qualitatively that provides information necessary for decision-making. In summary, a criterion is an indicator by which an assessment is made and the information obtained during this process is used to justify decisions.

In order to evaluate the alternatives of the selected strategy of food distribution systems, it is necessary to provide evaluation criteria on the basis of which this would be done.

Researchers identify various criteria for strategic decisions, but the most common recurring ones in the distribution system are twelve: *compliance with the strategic goals of the company; flexibility of strategic decision; advantage of a strategic decision over competitors; adequacy of human resources; compatibility with economic factors; compatibility with social factors; compatibility with technological factors; compatibility with ecological factors; adequacy of financial resources; appropriateness of the payback period; value to the consumer; compliance of the strategic alternative with the organizational culture* (Sullivan, 2018; Lee, 2012; Weijers *et al.*, 2012; Shaaban & Scheffran, 2017). The criteria analyze the external and internal factors that have the greatest impact on the company’s strategic decisions.

Table 1
Expression of strategic distribution alternatives in the context of institutional dimension (Taylor, 2013; Dornfeld *et al.*, 2013; Hall *et al.*, 2012)

Types of logistics process management solutions	Alternatives to logistics process activities
Customers selection	Own cargo warehousing
	Cargo warehousing for one customer
	Cargo warehousing for more than one customer
	Mixed
Selection of stored cargo by expiration date	Long validity
	Short validity
	Mixed
Selection of stored cargo according to special requirements	Temperature regulation
	Reservoir
	Standard
Provision of additional storage services	Packing
	Sorting
	Cutting

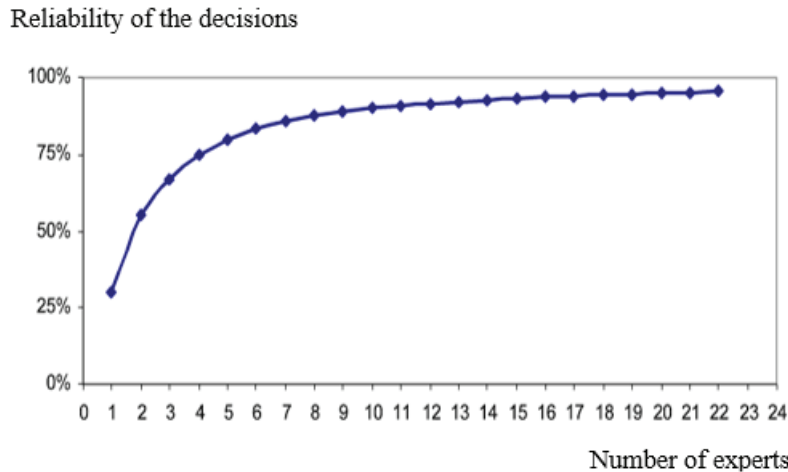


Figure 2. The decision reliability dependence on number of experts (Wright *et al.*, 2019).

Once strategic alternatives have been identified, there is likelihood that the selected alternatives may not be appropriate or feasible because they do not meet the company’s current financial, social or technological capabilities. Analysis and integration of the goal and objectives with the sustainable development until the best consensus is found.

Methods for evaluation. In order to perform an alternative assessment, it is necessary to choose the most appropriate method for evaluation. The management of the activities of companies and the activities of the food distribution system is attributable to social phenomena. Multi-criteria assessment methods are widely used for the analysis of this type of phenomena and for making managerial decisions.

When conducting factor assessment, the factors that occur primarily within the company are categorized as cohesive and refinement factors for distribution logistics. Sustainability is determined in the context of sustainable factors. After identifying factors to be improved, the model looks for opportunities for factor improvement and assesses the feasibility of factor improvement in the current situation, in accordance with sustainability principles.

In the search for opportunities, there is a need to identify and create a list of alternatives in order to evaluate and select most suitable ones based on a sustainability. Significance of the factors has to be determined by expert method. The number of experts influences reliability of final decision. We suggest using the scheme (Figure 2) for determination best number of experts, according to which we think that 6–7 experts are enough for a reliable decision.

Expert requirements also need to be established: distribution experience, understanding of sustainability, achievements in these areas.

For the study, experts were selected from a leading international capital company providing food

distribution services. The group of companies operates in 13 countries around the world and has 150 divisions. The total warehouse area is 1.2 million square meters. There are three divisions of the company in Lithuania. The company’s strategy clearly reveals sustainable development, social responsibility and other definitions related to sustainable development. One of the company’s areas of activity is the organization of food distribution system. All experts have more than 5 years’ experience in logistic sector, and they have been working with adaptation of main principles of sustainability in logistics for more than 3 years.

Prior to their assessment, it was important to establish criteria for the assessment in order that the assessment could be as objective as possible (Drejeris & Miceikiene, 2018). To do this, we proposed a scale of 100 points and total estimates are calculated as follows (Drejeris & Oželienė, 2019):

$$W_i = \frac{\sum_{e=1}^n W_{ie}}{n}, \quad i = \overline{1, m} \quad (1)$$

where W_{ie} is an estimate of the i -th question by the e -th expert, n is the number of experts and W_i is the sum of all i question estimates by all experts.

The equation below is used to establish the relative importance of the criteria (Drejeris & Oželienė, 2019):

$$n_i = \frac{W_i}{\sum_{i=1}^m W_i}, \quad i = \overline{1, m}, \quad (2)$$

In this case the sum of criteria importance will always equal one:

$$\sum_{i=1}^m n_i = 1, \quad (3)$$

If the result is different, there must be a calculation error.

The results of the experts' assessment are better to present in the form of table.

Then assessment of factors value according to possibilities for sustainability have to be calculated by following (*Simple Additive Weighting – SAW*) formula (Drejeris & Oželiene, 2019):

$$T = \sum_{i=1}^j \eta_i K_{ij}, \tag{4}$$

Where *T* – total value of factors according to possibilities to be sustainable, *K* – value of every factor.

Results and Discussion

For the study, an individual expert survey method was used under Figure No. 2. A questionnaire was developed for 6 experts from international company to assess the relevance of the criteria to the food distribution system. The results of the evaluation of experts are presented in Table 2. The experts gave the highest rank to the compatibility with the company's strategic goals (significance 0.12), and the lowest to the compliance of the strategic alternative with the organizational culture (significance 0.05).

Once the significance of the criteria has been established, an assessment of alternatives to the food distribution system is carried out. Experts among all 12 criteria had to split 100 points under criteria

important to food distribution system in context of sustainability in institution dimension. Results were given in coefficient format.

Under these criteria's, for food distribution system strategy creation need in total, the study evaluates 13 alternatives from 4 different groups according to 12 established criteria (Table 3). The nature of the selected criteria corresponds to the characteristics of the objects being assessed (Awasthi *et al.*, 2018).

The more alternatives included in the distribution system management, the clearer the results in order to make the most appropriate decisions for the company. We have selected only the possible main strategic alternatives, which are typical for food distribution system and possible to be specified if necessary. Such an option will really increase the flexibility of the strategy.

Summarizing the evaluation of food distribution system alternatives in the context of the institutional dimension, it can be stated that the most appropriate distribution strategy for a company is: to provide services, which can be provided to more than one customer; focus on the storage of long-life products; implement storage in a standard warehouse; provide additional packaging and sorting services. The company can also identify other strategic decisions which can stem from special needs and activities of the company for the evaluation and identification of the most appropriate evaluation system and methodology.

Table 2

The results of the expert evaluation to determine the significance of the criteria

Criteria	Expert						Significance
	E1	E2	E3	E4	E5	E6	
Consistency with the company's strategic objectives	0.12	0.13	0.12	0.11	0.12	0.11	0.12
flexibility of strategic decision	0.06	0.06	0.05	0.07	0.07	0.05	0.06
advantage of a strategic decision over competitors	0.08	0.07	0.06	0.08	0.08	0.07	0.07
adequacy and adequacy of human resources	0.11	0.11	0.11	0.09	0.10	0.11	0.11
compatibility with economic factors	0.09	0.07	0.10	0.10	0.11	0.09	0.09
compatibility with social factors	0.07	0.07	0.09	0.06	0.06	0.08	0.07
compatibility with technological factors	0.10	0.12	0.10	0.08	0.09	0.10	0.10
compatibility with ecological factors	0.06	0.05	0.05	0.08	0.07	0.08	0.07
adequacy of financial resources	0.10	0.10	0.11	0.12	0.10	0.12	0.11
appropriateness of the payback period	0.09	0.09	0.08	0.09	0.07	0.08	0.08
value to the consumer	0.07	0.08	0.07	0.07	0.08	0.06	0.07
compliance of the strategic alternative with the organizational culture.	0.05	0.05	0.06	0.05	0.05	0.05	0.05

Table 3

Evaluation of strategic distribution alternatives in the context of institutional dimension

Types of logistics process management solutions	Alternatives to logistics process activities	SAW (T)
Customers selection	Own cargo warehousing	0.0819
	Cargo warehousing for one customer	0.0829
	Cargo warehousing for more than one customer	0.0830
	Mixed	0.0824
Selection of stored cargo by expiration date	Long validity	0.0838
	Short validity	0.0835
	Mixed	0.0821
Selection of stored cargo according to special requirements	Temperature regulation	0.0830
	Reservoir	0.0828
	Standard	0.0832
Provision of additional storage services	Packing	0.0832
	Sorting	0.0832
	Cutting	0.0831

Conclusions

1. Food distribution logistics management in the context of institutional dimension is one of the core activities of a company to increase its competitiveness, but main decisions must be done in company's strategic level. Improper food distribution management can cause the company to suffer both financial and customer losses. The qualitative aspect of distribution logistics is extensively analyzed in the scientific literature, but in order to ensure quality, increasing attention is paid to the sustainable development integrity in company activities.
2. In order to create a food distribution system management model in the context of the institutional dimension, a systematized distribution system model and evaluation system

are presented. However, to perform a proper assessment of alternatives, it is appropriate to apply a multi-criteria assessment and identify the main criteria. Distribution logistics chain management sustainability is most clearly seen and analyzed by using SAW method.

3. A practical examination of the developed model and the application of the evaluation system in the food distribution company revealed that the evaluation system is appropriate and helps to identify the most appropriate strategic decisions. Based on the developed evaluation methodology, the company can evaluate various strategic decisions in the context of sustainability according to the institutional dimension. Results help to identify and choose most suitable alternatives which can increase sustainability level of the company.

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