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RESEARCH, DEVELOPMENT AND ELEMENTS EVALUATION OF MARKETING AND LOGISTICS SUPPORT OF ENTERPRISES IN PRODUCTION AND TRADE CHAINS

Summary

The relevance of the assessment of marketing and logistics support of enterprises in production and trade chains is argued in relation to its condition and level, development of enterprise processes in production and trade chains, systems of actions of organizational structures that embody marketing and logistics.

The expediency and method of hierarchies' analysis in the marketing and logistics assessment of the enterprises is proved. The evaluation algorithm is based on a double marketing-logistics mix 5PR that allows determining both the security level and enterprises rating.

The manifestation of dependence on the «pushing» or «pulling» systems is substantiated on the basis of enterprise processes identification in production and trade chains. The estimation of development directions of financial condition indicators as creation reflection and providing valuable commodities to consumers is offered.

It is proposed to choose strategies for directing actions of organizational structures systems that provide marketing and logistics support to enterprises in production and trade chains, based on the developed matrix «SCE&SCR/level of demand certainty», which promotes effective interaction of marketing and logistics.

Introduction

The enterprises activity in the market environment should be based on their appropriate marketing and logistics in production and trade chains: that contributes to the opportunities formation to expand markets and enter new ones, increase the interest of current consumers and attract potential, ensure the competitiveness of enterprises.

Theoretical and practical foundations of marketing and logistics management were considered in the works of foreign and domestic scientists,

such as: M. Christopher, H. Peck, F. Kotler, L. Balabanova, M. Voinarenko, S. Kovalchuk, E. Krykavska, M. Oklander, I. Reshetnikova, O. Tridid, N. Tiurina, N. Chukhrai and others; aspects of marketing and logistics of the enterprises were disclosed in the works of S. Kovalchuk, Z. Andrushkevych, N. Trishkina.

At the same time, the perception as a factor in improving the enterprises efficiency of their marketing and logistics in production and trade chains makes it relevant to research, develop and evaluate the elements of the latter. The starting point is the perception of such support as the creation and implementation of conditions that ensure effective interaction of marketing and logistics that can create and provide valuable commodities to consumers in production and trade chains based on the actions of organizational structures providing marketing and logistics support in effective work of the enterprises.

Therefore, the purposes of the study are: to develop the order of evaluation of marketing and logistics support of the enterprises to direct it to the marketing and logistics effective interaction; to reveal the method of identification and evaluation of the directions of development processes in production and trade chains of the enterprise in the creation and provision of valuable commodities to consumers; to develop approaches and direct organizational structures of action systems that provide and improve marketing and logistics support of the enterprises, in order to promote marketing and logistics activities.

Part 1. Substantiation of the sequence and assessment of marketing and logistics support of the enterprises in production and trade chains

Unstable activity, reflected in the financial results, low profitability of the vast majority of domestic enterprises, can lead to the expectation of their attention in the near future to the effectiveness of marketing and logistics in production and trade chains.

In this context, within the economic activity each enterprise faces a task to assess the level of its marketing and logistics in production and trade chains to improve the efficiency of functioning in the management system of supply, production, sales.

Existing methods of such assessment can be found in the economic literature, but they are rather limited and summarized as follows:

1) determination of the level of marketing and logistics of the enterprises based on the planning state of marketing and logistics activities of the enterprises and judgments on the relationship of such support with the presence (absence) of relevant marketing and logistics departments (or both) [1]. Taking into consideration recommendations that support certain creating type of organizational structure of marketing and logistics departments to perform marketing and logistics functions with the greatest economic effect, it should be indicated on incomplete assessment of marketing and logistics of the enterprises, carried out by this method;

2) studying of criteria and indicators for assessing the marketing and logistics of the production and trade chain and the formation of indicators a

system for assessing the effectiveness of marketing and logistics activities [2]. However, the assessment of the production and trade chain of enterprises (and not enterprises in production and trade chains) is carried out here, so it is not possible to formulate criteria for assessing the marketing-logistics support of the enterprises.

The complexity of marketing-logistics support of the enterprises in production and trade chains as an object of evaluation requires a method that will eliminate these contradictions, lack of data in its definitions and remove the likelihood experts' errors in assessments.

From these positions, it is advisable to use the method of Analytic Hierarchy Process (AHP) as means of multidimensional evaluation. Its application in rating evaluation or quantitative comparison of hierarchically organized indicators systems is widely covered in the works of T. Saati, K. Penivati [3], N. Bhushan, R. Kanvala [4], E.H. Forman, I.G. Sola [5] and domestic researchers, in particular, to assess the marketing policy of communications [6], marketing activity of commercial enterprises [7], the choice of enterprises information support in marketing activities [8], etc.

According to the algorithm of the AHP method, detailed in works of T. Saati [3] and his followers [9], its stages are developed and adapted to the content and criteria for assessing marketing and logistics of the enterprises in compliance with all requirements for application of the specified method.

The main stages of this algorithm are: problem definition (in our case, it is a quantitative assessment of indicators that characterize the enterprise marketing and logistics) and structuring the problem in a hierarchy to determine the purpose (evaluation of the enterprise marketing and logistics). In addition, a number of steps are repeated for each level of the hierarchy, such as: constructing a pairwise comparisons matrix and assigning estimates to each element of the matrices according to a scale of relative importance; calculation of the local vector of priorities; checking the consistency of the pairwise comparisons matrix; calculation of the weight of each indicator.

To assess the level of enterprise marketing and logistics, we have formed the base that is grounded on the marketing mix 4P, and logistics mix 7R double marketing, and logistics mix (double mix) 5PR, which has the appropriate advantages for considering the state of marketing and logistics of the enterprises, noted in [10]. Besides, we have defined the criteria of marketing and logistics of the enterprise in the composition: goods of the required quality in the required quantity to a certain consumer; promotion of goods with minimal costs at the right time; commodity promotion with minimum costs at required time; promotion of goods to the necessary consumer in the necessary place.

The decomposition of the problem is reduced to the following hierarchy (Figure 1).

The explanation for the construction of a hierarchical model for assessing the enterprise marketing and logistics is that the development of a sound and complete classification of factors is carried out taking into account the full range of features that cover all the important parameters of the enterprise

marketing and logistics, i.e., key factors that guarantee the effective interaction of marketing and logistics systems, as well as the marketing and logistics mix in general, to create and provide valuable commodities to consumers in production and trade chains to promote the efficient operation of the enterprise. In this context, to assess the enterprise marketing and logistics (f) for each criterion, it is allocated the appropriate sub-criteria with certain designations:

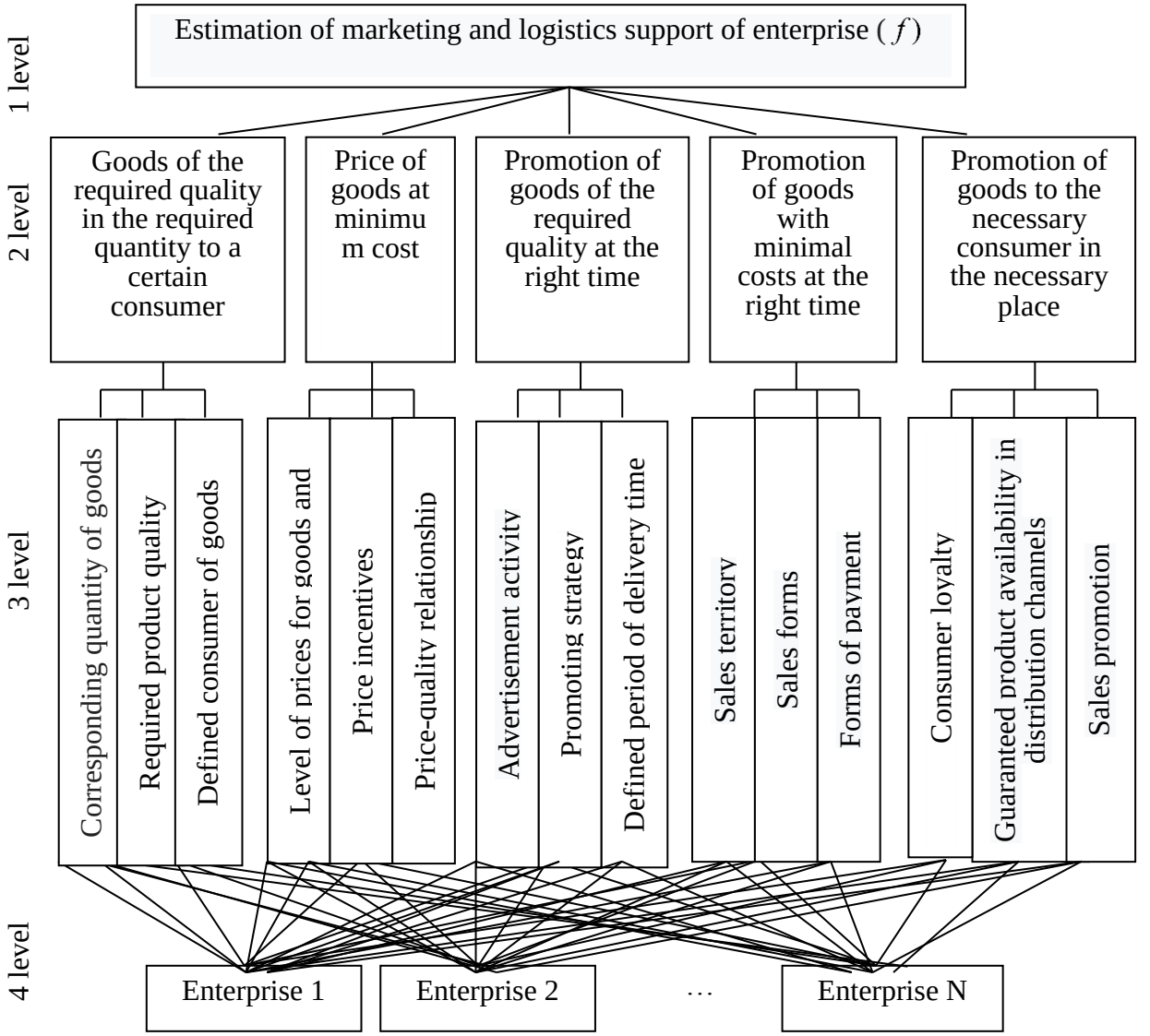


Figure 1. Hierarchical evaluation model of enterprise marketing and logistics

– to the criterion «Goods of the required quality in the required quantity to a certain consumer» (f_1): the corresponding quantity of goods (f_{11}); required product quality (f_{12}); defined consumer of goods (f_{13});

– to the criterion «Price of goods at minimum cost» (f_2): the level of prices for goods and services (f_2); price incentives (f_{22}); price-quality relationship(f_{23});

– to the criterion «Promotion of goods of the required quality at the right time» (f_3): advertising activity (f_{31}); promotion strategy (f_{32}); defined period of delivery time (f_{33});

– to the criterion «Promotion of goods with minimal costs at the right time»

(f_4): sales area (f_{41}); sales forms (f_{42}); forms of payment (f_{43});

– to the criterion «Promotion of goods to the necessary consumer in the necessary place» (f_5): consumer loyalty (f_{51});Guaranteed product availability in distribution channels (f_{52}); sales promotion (f_{53}).

According to the method of AHP, on the basis of the formed algorithm of an estimation of marketing and logistical maintenance of the enterprises, it was possible to carry out both an estimation of its level, and to define a rating of the investigated enterprises on such sign.

Thus, according to the development of a hierarchical model on criteria and sub-criteria at the third level, the formula for assessing the level of enterprise marketing and logistics in the production and trade chains (*f*) was received, formula (1):

$$f = 0.120 \cdot f_{11} + 0.058 \cdot f_{12} + 0.042 \cdot f_{13} + 0.218 \cdot f_{21} + 0.105 \cdot f_{22} + 0{,}076 \cdot f_{23} + 0{,}052 \cdot f_{31} + 0{,}022 \cdot f_{32} + 0{,}082 \cdot f_{33} + 0{,}068 \cdot f_{41} + 0{,}032 \cdot f_{42} + 0{,}024 \cdot f_{43} + 0{,}017 \cdot f_{51} + 0{,}035 \cdot f_{52} + 0{,}049 \cdot f_{53} \quad (1)$$

The results of the study on the fourth level of the hierarchy allowed to determine the enterprises rating according to their marketing and logistics. There is a scope of estimates from 0.245 (for the company that occupies the first place) to 0.098 (for the company that takes the last place).

Thus, the assessment of marketing and logistics of the enterprises using the hierarchy analysis method allows to determine the level of marketing and logistics of the enterprises in production and trade chains, to compare the meanings of the factors, to reveal common and distinctive features and to establish enterprise rating of such support.

Part 2. Identification and evaluation of the enterprise development processes in production and trade chains

Taking into account perspective processes in production and trade chains, the enterprises that form them focus their efforts on improving the efficiency and growth of their own market supply. The philosophy of close integration with suppliers and consumers in the achievement of additional market successes and benefits dominates in the marketing and logistics of the enterprises in production and trade chains.

The processes of enterprises in production and trade chains can be identified after bringing them to certain criteria, i.e., the ability to distinguish

chains; selection of features are taken as a basis for identification. Proposed criteria for identifying enterprise processes in production and trade chains (based on the formation of marketing and logistics of the enterprises in these chains as the essence of the study), is considered as the choice of such basic indicators that are common to both marketing and logistics activities, as well as to enterprise processes in the production and trade chains.

The SCOR model seems to be the most attractive in use for the identification of production and trade chains, as it includes activities directly related to the movement of material flow. However, when using the SCOR model for versions lower than 12.0 (and the latter version has not yet become widespread in domestic enterprises), such areas as product sales, marketing strategies, research and technology development and some elements of after-sales service remain «uncovered».

Under such conditions, the processes of enterprises in production and trade chains are proposed to identify on the basis of allocation in both logistics and marketing activities, two basic principles of material flow management (which, in fact, form the basis of supply, production and enterprises sales in production and trade chains), as:

– pushing, which is the basis of the «Push-system»;
– pulling, on which the «Pull-system» rests.

Their choice to identify the enterprises processes in production and trade chains in the formation of marketing and logistics of the enterprises in such chains, are justified by the fact that:

– from a marketing standpoint, there is a significant difference between two diametrically opposed approaches to product promotion that the «Push-system» focuses on the promotion of traditional products of the company, which are already manufactured and exist on the market, and the «Pull – system» is aimed at the study of needs and potential commodity demands and creates on this ground a variety of products. In this case, the product does not need to be pushed because it will be «pulled» out of production by the consumer;

– according to the logistics concepts, the purpose of both systems is to meet the needs of the next link at the expense of the resource of the previous link; the main and defining differences are: the method of flow control; the degree of centralization of revenue planning for interlink transfers; approaches to establishing the rhythm that determines the movement of the entire material flow, according to which the starting point of the «Push-system» is the plan, and of the «Pull-system» is the demand, so that logistics concepts are focused on the different nature of consumer demand;

– the system of enterprise processes in production and trade chains should cover the activities of all participants in such a chain, so it should combine a set of interdependent strategies: supply (procurement), production, sales (distribution).

First of all, it is necessary to underline the relevant indicators as criteria for identifying of enterprises processes in the production and trade chains. For the

formation of such assessment, it is important to keep in mind the following features of enterprises processes in production and trade chains:

– general enterprises processes represent a closed cycle of the capital expanded cycle of the corresponding enterprise;

– enterprises processes embody material and cash flows, that simultaneously implement the processes of commercial, operational, financial, marketing, logistics and other activities;

– enterprises use all the resources that are logically and consistently implemented functions of labor objects transformation in accordance with the laws of their transformations through labor itself and means of labor into finished products for certain consumers.

The following characteristics are also important for assessment formation:

1) the basis for the identification and comparison of the enterprises processes in the production and trade chains should be objective information about the consequences of production, economic and financial activities of enterprises;

2) the sources of such information should be indicators of the relevant generally accepted forms of enterprises reports;

3) it is necessary to take into account the most important indicators of property and financial conditions of these enterprises, the efficiency of their production, economic and market activities when assessing the enterprises processes in production and trade chains.

Based on the above justification, it is proposed to carry out such an assessment using indicators that characterize enterprise financial condition. For criteria that identify the enterprises processes in the production and trade chains such groups of indicators are selected:

– liquidity and solvency (N1) – the enterprises ability for fast conversion assets into cash and their ability to meet to creditors obligations over a period of time. These criteria are particularly important for the «Pull-system», in which key questions are the relationship with suppliers regarding solvency in settlements with them, showing the enterprise ability to meet current obligations;

– profitability (N2) – efficiency of activities in relation to the enterprises processes in the production and trade chains; the factor that affects the efficiency of both the pulling and pushing systems, but is of less importance because it reflects the retrospective;

– business activity (N3) – characterizes the efficiency of invested funds used in the enterprises processes in the production and trade chains and determines the enterprise assets that can increase the activities efficiency; a criterion that is more characteristic of the «Push-system», as fuzzy tracking of demand requires the obligatory stocks and reserves of insurance;

– financial stability (N4) – the ability to carry out economic activities in the enterprises processes in production and trade chains in conditions of entrepreneurial risk and changing business environment in order to strengthen competitive advantages, taking into account interests of state and society; factor that matters both of the systems;

– property potential (N5) – characterizes the enterprises composition and capital structure, the state of fixed assets, the type of their reproduction and efficiency; it influences on both (Push- and Pull-systems) alternatives.

Since the study of enterprise performance is conducted at the current time, the solution of the problem occurs under conditions of certainty. Thus, a model of linear programming of decision-making under conditions of certainty is built [3; 11; 12].

Accordingly, the matrix of pair-wise comparison of the importance of indicators of enterprise processes in production and trade chains on the «Pull-system» confirms the priorities of liquidity and solvency, and then – the stocks turnover in assets. At the same, in the enterprises processes in the production and trade chains of push-type systems («Push-system») the focus on the material flow planning is of primary importance, but they have one common drawback – fuzzy demand tracking with the mandatory availability of insurance stocks. Therefore, in the enterprises processes in the production and trade chains under this system of fluctuations in demand cause extremely negative consequences, putting forward inventory turnover indicators in assets.

The evaluation of two systems is based on the calculation of the combined weighting factor for each of them:

– «Pull-system», formula (2):

$$X_1 = 0{,}33N_1 + 0{,}07\ N_2 + 0{,}13\ N_3 + 0{,}27\ N_4 + 0{,}20\ N_5; \qquad (2)$$

– «Push-system», formula (3):

$$X_2 = 0{,}13\ N_1 + 0{,}20\ N_2 + 0{,}34\ N_3 + 0{,}13\ N_4 + 0{,}20\ N_5. \qquad (3)$$

Since the objective function tends to the maximum, therefore, the system with the highest coefficient will be optimal.

Thus, the enterprise processes formation in production and trade chains according to the system, in which the combined weighting factor is higher, and is optimal for the enterprise with the available indicators.

Measures of marketing and logistics support of the enterprises are aimed at:

- during the «Push-period» the intermediaries in order to draw attention to the enterprise goods and voluntary cooperation; trade discounts, sales competitions, cooperation in advertising, staff training, etc. and such a strategy is usually justified when the company cannot do without intermediaries;

- in case of the «Pull-period» final consumers by passing intermediaries; during such period following measures are popular: active advertising, brand promotion, exhibitions, souvenirs, as the company seeks direct contacts with potential consumers to influence intermediaries, «forcing» them to cooperate.

However, it should be noted that in practice, companies usually use mixed strategies and improvement integration of the previous ones.

Part 3. Direction of organizational structures actions system that provide marketing and logistics support of the enterprises to improve it

Research and direction of organizational structures actions system that provide marketing and logistics of the enterprises in production and trade chains, considered to be of great importance in researches of the optimal relationship («power balance») between marketing and logistics. And it is in the processes conditions in production and trade chains that are characterized as internal supply chains and logistics chains, we propose to use terms that are widely applied in management of these chains, namely [12; 13]:

– Supply Chain Responsiveness (SCR) is a characteristic of the supply chain that reflects the ability to respond quickly to environment changes;

– Supply Chain Efficiency (SCE) is certification, which reproduces the level of total costs in the supply chain from product development to consumer delivery and after-sales service.

The characteristics of the above categories reflect the diversity of marketing and logistics activities [14], namely:

– marketing tends to «reactivity» in determining the material flows composition in production and trade chains and the distribution of such flows,

– logistics tends to be «efficient» in the material flows management in production and trade chains and customer service.

Thus, the concepts of «reactivity» (SCR) and «efficiency» (SCE) are further used in relation to marketing and logistics activities of the enterprises in their production and trade chains. These terms explain the primary enterprises activity to meet consumer demand and reduce overall costs. Characteristics of marketing and logistics functional strategies with the use of the concepts of «reactivity» and «efficiency» are due to the problems that are solved by marketing and logistics [12]. In the context of our research, such characteristics are important, necessary, and sufficient.

Thus, the «power balance» between marketing and logistics activities in the study and direction of the system of organizational structures that provide marketing and logistics to enterprises in production and trade chains, is revealed in the reactivity ratio and efficiency of business strategy.

Using the terms «reactivity» and «efficiency» in the meanings defined above, we emphasize that «reactivity» (SCR) represents the situation of subordination to the marketing activities of the enterprise logistics activities, and «efficiency» (SCE) symbolizes the situation of significant impact of logistics activities on marketing aspects activities.

To determine the strategic compliance area in coordinates of the two above analyzed cases, scientists propose to build a graph, in which the predicted areas of change in SCE / SCR parameters depending on the third parameter, namely: «estimated uncertainty of demand» [13; 15]. At the same time, the relationship between the parameters of «SCE / SCR» and the degree of demand certainty opens the possibility of choosing and using different supply chain strategies [15]; the latter, in our opinion, it is advisable to use in

organizational structures that provide marketing and logistics of the enterprises in production and trade chains.

Adapting the development of organizational structures strategies that provide marketing and logistics of the enterprises in production and trade chains, we propose a combination of supply chain strategy model [15] and the schedule of its strategic area identification [13; 15] in the proposed matrix, that can be named «SCE&SCR/level of demand certainty».

The main specific and conceptual points of the matrix «SCE&SCR/level of demand certainty», which, in our opinion, justify the feasibility of its use in directing the organizational structures system can be formulated in the following information.

In the matrix «SCE&SCR/level of demand certainty» horizontally (X-axis) we propose to set an integrated multifactor estimation of demand predictability (high, medium predictability, medium, high unpredictability), i.e., demand predictability decreases all the time, which makes it possible to estimate demand on one scale.

On the vertical of the matrix (Y axis) formed by us, we recommend to specify both efficiency integral estimation (from high efficiency to average, coinciding to the value close to conditional zero), and a reactivity integrated estimation (from the average reactivity beginning with the value close to conditional zero, to high reactivity); this requires the development and simultaneous availability of two rating scales (efficiency and reactivity, respectively). We emphasize once again that the logical explanation of such a specific construction of the Y-axis matrix «SCE&SCR/level of demand certainty» is the simultaneous presence in each company marketing and logistics activities in their measurement, respectively, levels of reactivity (SCR) and efficiency (SCE).

As a result, the matrix «SCE&SCR/level of demand certainty» for each of the surveyed companies on the Y-axis simultaneously provides an assessment of both the level of its efficiency (i.e., the state of logistics) and reactivity (i.e., the state of marketing) with the same demand certainty level recorded on the X-axis.

The possibility of organizational structures to choose the appropriate reactive and efficient business strategies for the matrix (adequate to the enterprises positioning in the matrix) is coincided financially attractive for the use of the matrix «SCE&SCR/level of demand certainty», which are: coverage strategies (I); channel (II) focusing strategies; strategies of individualized customer service (III), strategies of operational dynamics (IV) and their application to improve the marketing and logistics of the enterprises in production and trade chains.

According to the following characteristics, the matrix «SCE&SCR/level of demand certainty» is proposed to be formed and used for:

– identifying the enterprises current state for the reactive and efficient business strategy application by organizational structures that provide marketing-logistics support of the enterprises;

– providing recommendations on the feasibility of applying the «SCE/SCR» strategies in the direction of actions system of the above mentioned organizational structures to improve the marketing and logistics of the enterprises in the production and trade chains;

– making choice of reactive and efficient business strategy, the possible establishment of «power balance» between marketing and logistics activities of organizational structures that provide marketing and logistics of the enterprises.

In this case, there are four leading aspects:

1) each cell of the matrix is associated with specific strategy of organizational structures that can provide marketing and logistics support of the enterprises in the production and trade chains for marketing and logistics activities;

2) each of them has its own set of standard strategic decisions, known existing advantages, disadvantages and ways of solutions;

3) for enterprises that are positioned in a certain matrix cell, which is crossed by the so-called «strategic compliance zone», confident choice of future integration of marketing and logistics activities is possible;

4) for enterprises from each quadrant of the matrix, which are not included in the «strategic compliance zone», an individual set of so-called standard strategic clarifications is provided.

Further setting of clear and distinct goals for organizational structures that provide marketing and logistics support of the enterprises in the production and trade chains, includes such stages:

1. Identification of basic indicators of marketing and logistics activities in production and trade chains from the standpoint of identifying levels of reactivity (subordination to the marketing and logistics activities of the enterprise) and efficiency (the impact of logistics activities on aspects of marketing activities).

2. Determining the rank of factors and the transformation of basic indicators of reactivity and efficiency (marketing and logistics activities) in production and trade chains in quantitative indicators to assess their values and the formation of an integrated indicator of each enterprise.

3. Identification of uncertainty demand area by identifying the basic indicators and the formation of an integrated indicator of each enterprise.

4. Construction of the matrix «SCE&SCR/level of demand certainty» and positioning of the surveyed enterprises for the selection of reactive and efficient business strategies by organizational structures that provide marketing and logistics support to enterprises in production and trade chains, aimed at improving such supply.

5. Research of reactive and efficient business strategies for organizational structures that provide marketing and logistics support of the enterprises in production and trade chains and directions development for their implementation.

We consider it important to put in Table 1 the presented quantitative indicators on the enterprises processes in production and trade chains and

comparative estimates of their values at the basis of the first stage, namely: to identify the basic indicators of marketing and logistics activities from the standpoint of identifying the reactivity and efficiency levels.

Table 1

Comparative assessments of quantitative reactivity and efficiency indicators of units involved in marketing and logistics of enterprises in production and trade chains *

Stages production and trade chains (B)	Designation of strategies		Indicators	Designation of indicators (C)	Evaluation and designation			
					Reactive Strategy (P)		Efficient Strategy (E)	
	Reactivity	Efficiency			Evaluation	Designation	Evaluation	Designation
Delivery (B1)	PB1	EB1	Number of deliveries	C1	1	PC1	0	EC1
			Delivery lot size	C2	0	PC2	1	EC2
			Number of nomenclature items	C3	1	PC3	0	EC3
			Stock level	C4	1	PC4	0	EC4
Production (B2)	PB2	EB2	Production volume	C5	1	PC5	0	EC5
			Equipment utilization ratio	C6	0	PC6	1	EC6
			Employee utilization ratio	C7	0	PC7	1	EC7
			Number of defects	C8	1	PC8	0	EC8
			Production prime-cost	C9	1	PC9	0	EC9
Sales volume (B3)	PB3	EB3	Number of orders	C10	1	PC10	0	EC10
			Number of returns	C11	1	PC11	0	EC11
			Sales volume	C12	1	PC12	0	EC12

** developed by the author [16; 17]*

However, it is obvious that for such estimates the usage of the binary scale «0» – «1» is not enough. Therefore, to expand the range of estimates of the factors rank, we use a scale of pairwise comparisons [3] by assigning the indicators estimated in Table 1 as points «1» and «0», respectively, and points closer to «9» and «1» from their range.

Since each of the surveyed enterprises is subjected to identification in terms of their reactivity (R) and efficiency (E), respectively, a hierarchy of performance indicators of units involved in marketing and logistics of the enterprises in production and trade chains by reactive and efficient strategies.

Next, the priorities of the criteria are set and each of the alternatives is evaluated, i.e., marketing (reactivity – SCR) and logistics (efficiency – SCE) activities of units involved in marketing and logistics of the enterprises in production and trade chains, for which matrix of pairwise comparisons (SCR)

and efficiency (SCE) according to certain criteria were proposed. For each matrix, the vector components of local priorities are calculated accordingly and other necessary calculations are performed.

This allowed us to obtain formulas for assessing the level of:

– rank of marketing activity of the enterprises – the level of reactivity rank (RR), formula (4):

$$RR = 0.162PC_1 + 0.019PC_2 + 0.088PC_3 + 0.368PC_4 + 0.092PC_5 + 0.011PC_6 + \\ + 0.039PC_7 + 0.025PC_8 + 0.091PC_9 + 0.032PC_{10} + 0.006PC_{11} + 0.087PC_{12} \quad (4)$$

– rank of logistics activities of the enterprises – the level of efficiency rank (ER), formula (5):

$$ER = 0{,}014EC_1 + 0{,}101EC_2 + 0{,}008EC_3 + 0{,}044EC_4 + 0{,}055EC_5 + 0{,}104EC_6 + \\ + 0{,}497EC_7 + 0{,}053EC_8 + 0{,}031EC_9 + 0{,}015EC_{10} + 0{,}007EC_{11} + 0{,}071EC_{12} \quad (5)$$

After that, the assessments of reactivity/efficiency factors of the units involved in the marketing and logistics of the enterprises in the production and trade chains in the range of 1-10 are fulfilled. Using the factors rank calculated by formulas (4) and (5), level indicators of reactivity (marketing activities) and efficiency (logistics activities) of the studied enterprises have been obtained.

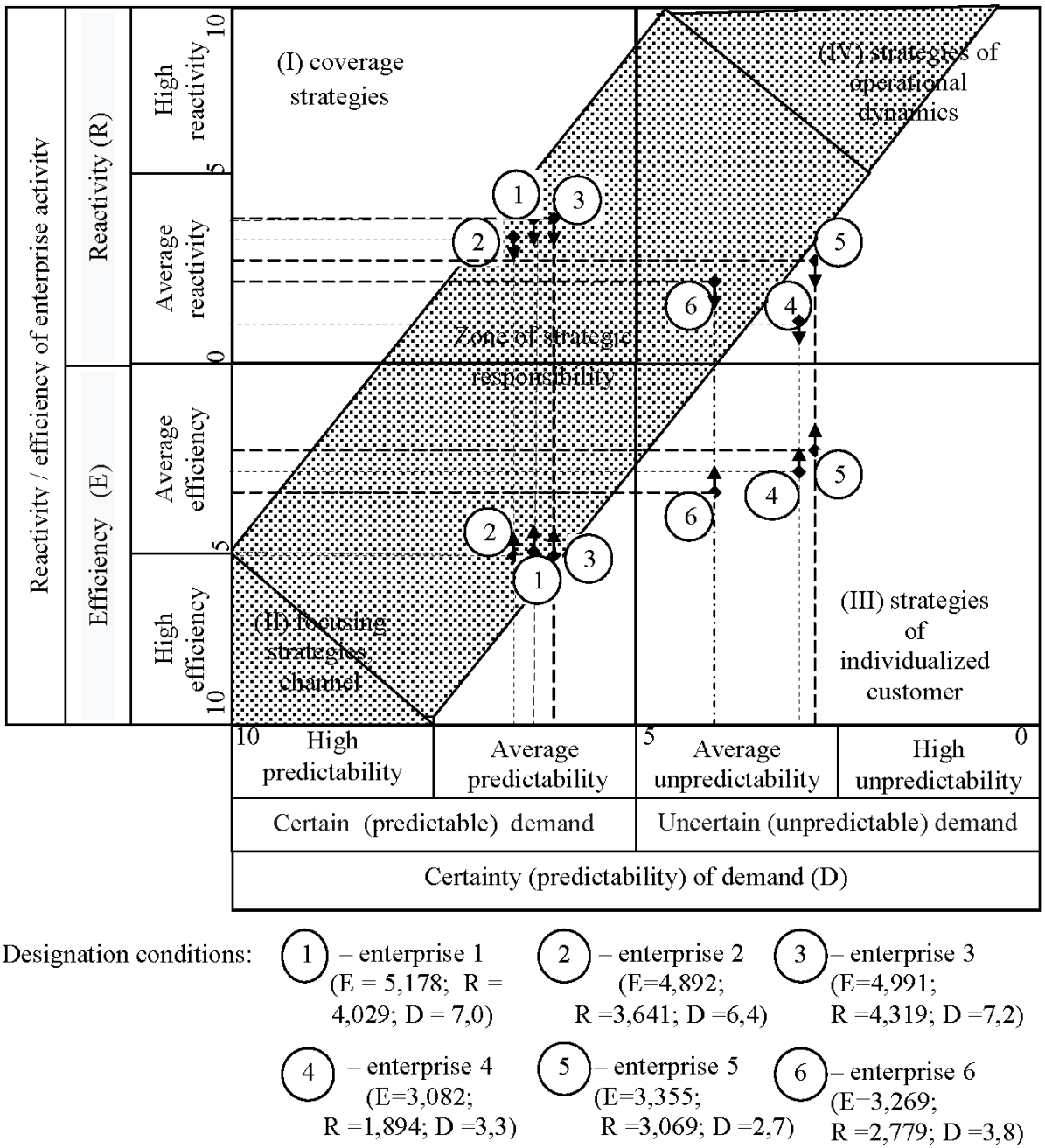
The next step is to identify the area of uncertainty demand by identifying baseline indicators and forming an integrated indicator of each of the enterprises.

In general, consumer demand in each market segment may vary depending on the following main factors [13; 16]: the quantity of product required in each order; admissible reaction time to the consumer's order; variety of necessary products; the required level of service; product prices; the desired level of novelty (innovation) in the product. Accordingly, the characteristics and definition of level indicators of certainty (predictability) of demand of the studied enterprises are provided.

The above actions provided an opportunity to position enterprises in the matrix «SCE&SCR/level of demand certainty» (Fig. 2), where positive characteristics of organizational structures in the implementation of marketing and logistics of the enterprises 1, 2 and 3, located in the area of strategic reactivity and efficiency have been identified, but that have not been achieved by enterprises 4 and 5.

In general, for enterprises that follow a reactive strategy, i.e., where the marketing support of enterprises prevails in comparison with the logistics, organizational structures that provide such support to enterprises in production and trade chains, a strategy of comprehensiveness and operational dynamism can be proposed for implementation. Accordingly, for companies that implement an effective strategy, when the logistics of enterprises outweigh the marketing, these structures can be offered strategies that focus on the channel and individualized customer service.

Thus, having relationship between the parameters of «SCE/SCR» and the certainty (predictability) degree of demand, companies have the opportunity to choose strategies of organizational structures that provide marketing-logistics of the enterprises in production and trade chains to improve the latter.



Designation conditions:

1 – enterprise 1 (E = 5,178; R = 4,029; D = 7,0)

2 – enterprise 2 (E=4,892; R =3,641; D =6,4)

3 – enterprise 3 (E=4,991; R =4,319; D =7,2)

4 – enterprise 4 (E=3,082; R =1,894; D =3,3)

5 – enterprise 5 (E=3,355; R =3,069; D =2,7)

6 – enterprise 6 (E=3,269; R =2,779; D =3,8)

Figure 2. Positioning of enterprises in the matrix «SCE&SCR/level of demand certainty» to direct actions system of organizational structures that provide improvement for marketing-logistics support of the enterprises in production-trade chains, *

** developed by the author*

Conclusions

Improvement of enterprises effectiveness of marketing and logistics support in production and trade chains is based on the assessment of: the state and level of marketing and logistics for focusing on the effective interaction of marketing and logistics; directions of enterprise processes development in production and trade chains for creating and providing valuable commodities to consumers; systems of organizational structures actions that provide marketing and logistics support to the enterprises for improving the latter in order to promote marketing and logistics activities.

Based on the complexity of marketing and logistics support of the enterprises as an object of evaluation, the necessity of application of hierarchies' analysis method for evaluation is proved. The use of 5PR in the evaluation of the existing double marketing and logistics mix, which has advantages in considering the state of marketing-logistics support, allowed determining the level of the latter and the rating of enterprises.

From the standpoint of marketing and logistics support, the main identification of enterprise processes in production and trade chains is their belonging to the pushing or pulling systems. The assessment of the development directions of such processes has been carried out according to the indicators of the enterprises financial conditions that cover all links of production and trade chains.

The actions of organizational structures that provide marketing-logistics to enterprises are aimed at the optimal relationship («power balance») between marketing and logistics under the processes conditions in the production and trade chains. The positioning of enterprises in the developed matrix «SCE&SCR/level of demand certainty» allows to carry out a choice of strategies direction aimed at the system of actions of the specified organizational structures.

Thus, the assessment of elements of marketing and logistics support of the enterprises in production and trade chains is aimed at its development.

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