

3.3 Adaptive approach in the system of management and marketing research of business entities in agriculture

Business entities in agriculture, which adapt to function in wartime conditions, are quite sensitive to the extreme states of the socio-economic system, transformational shocks and chaotic fluctuations in production. The state of the agricultural sector and agriculture of the Ukrainian economy are characterized by instability, which is due to hostilities, the alignment of social, demographic, economic and political forces. The institutional matrix has not been thoroughly worked out, and the concept of agrarian transformations needs new changes. The level of development of adaptation of the economic mechanism for the functioning of business entities in agriculture determines the level of development of competitive, cooperative and integration relations. The mechanism of adaptive management, harmonization of marketing research, optimization of management decisions and provision of competitive advantages is one of the main components of the adaptation of the economic mechanism of functioning and needs constant improvement.

Studying the problems of development of adaptation of the economic mechanism of functioning of business entities in agriculture to wartime conditions and identifying the features of the adaptive approach in the management and marketing system, attention was paid to the developments of Kazak O., Obelets T. (2022), Kravchenko S., Malik M. (2022), Kvach Y., Piatka N., Koval V. (2020), Lupenko Yu., Khodakivska O., Nechyporenko O., Shpykuliak O. (2022), Natorina A. (2019), Shpakov A., Stetsenko S., Shpakova H., Sorokina L., Akselrod R. (2021), Zinchenko O., Privarnikova I., Samoilenko A. (2022), Hrinchenko R.V. (2019), Holich N., Panuhnik O. (2020), Chimosh K. (2020) and others. The study of adaptive management and marketing systems in the extreme conditions of the functioning of business entities by researchers correlates with the analysis of the adaptation of organizational and economic forms, the ability of the management system to effectively achieve the goals of functioning; adaptation of the production structure to a variety of environmental conditions; consistency of strategies, tactics and operations in the management of the

capital structure; the establishment of flexible institutional arrangements; change management; forecasting of economic processes; a strategy for manoeuvring in the allocation and redeployment of resources; control by weak signals, bifurcation processes; adjustment of management decisions taking into account market factors; synchronous response to changes in the market environment; methods of adaptive search in management and others. Nevertheless, the features of the adaptive approach in the system of management and marketing research of business entities in agriculture are not comprehensively disclosed. The mechanism of adaptation of management and harmonization of marketing research needs a thorough scientific and methodological substantiation.

The level of development of adaptation of the economic mechanism for the functioning of business entities in agriculture to extreme operating conditions is one of the conditions for ensuring the country's food security. The establishment of a correctly chosen and scientifically based essence of the adaptive approach to management and harmonization of marketing research allows us to fully and correctly not only adjust the level of adaptation of the economic mechanism of functioning, but also to develop ways to improve the mechanism of adaptation of business entities in agriculture to wartime conditions; stabilization of agricultural production, social security of agricultural producers; optimization of financial, price, credit and tax relations.

The purpose of writing the work is to determine the main features of the adaptive approach in the management system and marketing research on the example of business entities in agriculture of a particular region. The achievement of the goal was facilitated by general scientific methods: methods of empirical research (measurement, comparison, observation), methods of theoretical research (analysis and synthesis); as well as a local (specific) method - a method of analyzing situations (computational and constructive method).

If the "norms and rules of the market game" are observed, the model of adaptive behavior in the operating environment chosen by the business entity in agriculture, which is interrelated with the adaptive reaction of management personnel or the mechanism of strategic target achievement, is of great importance. For an individual

business entity in agriculture, the type of adaptive response model is absolutely individual (as well as the size of the market share, the features of its internal environment and the capacity of the market niche in a specific spatial, temporal and synthetic period of time).

The mechanism of adaptive control corresponds to active adaptation, and passive with the effect of anti-sip. If parametric adaptation is associated with parameter correction, then structural adaptation is associated with changes in the structure of the model. Fully the processes of adaptation modification are revealed at the level of adaptive response to external changes. When a business entity in agriculture encounters a new effect of instability in wartime conditions for its practice of activity, the personnel of the management of the business entity implements the process of reactive adaptive change management.

If, under certain socio-economic and political circumstances, the effect of market conditions and relations actualizes a further level of survival, then the business entity (primarily due to the underdevelopment of the adaptation mechanism) risks losing its market niche capacity in the market environment (it will simply be occupied by competitors).

But if the management of the business entity is ready for prompt response to the disturbances of the operating environment, then the personnel of the enterprise administration implements the process of active adaptive change management. Business entities in agriculture can master the principle of maintaining financial stability and stable profitability through the mechanism of active innovation activity (especially since there are no stable stereotypes of market behavior among domestic producers).

The adaptive approach in the management system is associated with the development and application of the most effective strategies for the reflection by the business entity in agriculture and its network structures of the impacts of the market environment. In the system of managerial decision-making to ensure competitive advantages and the adaptive status of the business entity in agriculture, the selected optimal options for the strategy of adaptive management and harmonization of

marketing research are combined in the implementation of economic measures and solving the problems of developing the economic mechanism.

Adaptation measures in the management system include the following: ensuring the openness of distributive relations and the convergence of economic interests of employees and the administration of business entities; reduction of the cost of agricultural products and prices for mechanized work; ensuring the reproduction of fixed production assets and high maneuverability of resources; implementation of problem-oriented decision support systems; analysis of resource market conditions, profitability and profitability of products; ensuring high flexibility of the objectives of the functioning of the business entity through the implementation of forms of passive (changing the internal environment of the business entity in comparison with the conditions of the external environment and wartime in order to preserve the creditworthy state) and active (changing the external environment in comparison with the goals of functioning and the needs of the business entity in the agriculture of the enterprise) adaptation; reduction of costs for transportation and storage of products; development of schemes for timely guarantee financial settlements; reduced maintenance and repair costs; the use of adaptive modeling and forecasting tools to improve the efficiency and efficiency of solutions, as well as the introduction of networked computing systems that accelerate intermediate calculations and other activities.

The purpose of the adaptive management system in the process of finding ways to improve the adaptation of the economic mechanism of the functioning of business entities in agriculture is compared with the optimization of the target functionality, which refracts in itself as in a prism the form of reflection of the effects of the market environment. The rules governing the operation of the elements of the system form the mechanism for the functioning of the adaptive management system of business entities in agriculture.

Changing the structure of the system is associated with the identification of the composition of the elements and their synthetic, functional, spatial and temporal relationships. Therefore, one of the leading tasks of developing an adaptive

management system of a business entity in agriculture is the synthesis of the structure and mechanism of the system, as well as the choice of the goal of managing the adaptive system.

When developing an adaptive control system, attention should be focused on the following stages: 1) specification of the evolutionary relationship (composition of system variables; types of interference, patterns and parameters of interference; list of control actions; control algorithms and others); 2) determination of the criterion and objectives of the system functioning (the mathematical expectation of indicators can be a criterion of an adaptive system); 3) creation of a planning model (criteria, constraints, conditions, dynamics and method of solving the planning problem are formalized); 4) development of a regulation model (a model of the influence of the coordinate regulator with restrictions is formed; the method of selecting regulatory influences is chosen); 5) creation of a model of the market environment (methods of forecasting, estimating and adapting parameters, the laws of each type of perturbation or interference of the environment are determined); 6) development of a simulation model (the components are formalized; methods for generating random variables with the law of distribution are selected; the influence operator is focused; the model of the regulation system is revealed); 7) parameterization (parameters are divided by the adapter into phases of regulation and planning; restrictions on parameters are created); 8) construction of a structural adapter (the algorithm is built and the goal of adaptation is formed; modification of algorithms and models is chosen); 9) creation of an external adapter (groups of homogeneous external adapters are allocated; an algorithm is built and the goal of adaptation for each group is formed; adequacy to the real object is checked); 10) development of an internal adapter (actions similar to stage 7); 11) identification of exogenous variables in the adaptive modeling of control and planning systems (the output data on the control system are linked to the input data on the planning system); 12) construction of the sustainability sector (the zone of sustainable functioning is determined only in the current management system).

The mechanism of marketing management is aimed at: the need to overcome the factors that inhibit the adaptation of the economic mechanism; increasing the

professionalism of management personnel; market method of distribution of economic resources; responsibility and activity of specialists; optimization of control levels; improving product quality, demand for it and the level of product competitiveness; dependence of the functioning of production units on the forms of ownership of the means of production; meeting the needs of producers and consumers. Marketing management needs sources for transformational costs (production costs), and marketing management needs sources for transaction costs (costs for control, coordination and sale of products, negotiations, information search).

The largest part of marketing research is carried out in the space of "marketing + logistics". At the micro level, the state of meeting the needs and demand of consumers is studied, taking into account the optimization of marketing components, and at the meso level, the harmonization of coordination of inter sectoral cooperation relations is studied. The optimal choice and development of marketing strategies in integrative integrity with professional and active management of the business entity in agriculture allows you to evaluate the own resources of the business entity with the needs of the market. And this is one of the conditions for the adaptability of trade relations.

One of the directions for improving the adaptation of the economic mechanism of the functioning of business entities in agriculture is the development of a methodology for harmonizing marketing research and organizational and managerial interactions. Taking into account the theoretical and methodological positions of scientists and their own conceptual approaches, they tested on the example of specific agricultural enterprises of the Sumy region of Ukraine during 2021-2022 the methodology for diagnosing the professional activity of personnel in solving the problems of marketing and marketing potential (while modifying the normative scale of assessment and the number of indicators), the equilibrium state of the business entity and the potential for its survival in extreme By developing a regulatory rating scale and functional dependencies.

The main results of the assessment of the professional activity of the staff in solving the problems of marketing, marketing potential, equilibrium state, survival potential of business entities in agriculture of the Sumy region of Ukraine are presented

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in the table and figures and prove clearly a direct spiral relationship between the level of professional activity of the staff in solving marketing problems, marketing potential and the level of survival of the business entity in the environment functioning, development of adaptation of the economic mechanism of functioning of business entities in agriculture in wartime conditions.

Table

Main results of the assessment of the professional activity of personnel in solving the problems of marketing, marketing potential, equilibrium state, survival potential of business entities in agriculture of the Sumy region of Ukraine

Business entity	Professional activity of personnel in solving marketing problems					Marketing potential		Equilibrium state	Survival potential
	K1.1	K1.2	K1.3	K1.4	K2	K3.1	K3.2	F1	F2
PAR AF "Viktoriya"	0,8307	0,7416	0,6029	0,7213	0,7345	0,7018	0,7642	-0,0006	0,0009
PAR AF "Kalinivka"	0,2313	0,2802	0,2011	0,2569	0,2227	0,1624	0,1985	0,0489	-0,0037
PAR "Khustyanske"	0,6142	0,5215	0,4816	0,6538	0,5810	0,5290	0,5922	-0,0032	0,0055
PAR "Nafkom-Agro"	0,8715	0,6823	0,7005	0,7924	0,7757	0,7952	0,7800	0,0005	-0,0009
PE "Vilne"	0,8804	0,7110	0,6321	0,7803	0,7668	0,7703	0,7793	-0,0001	0,0008
PE "Druzhba"	0,6306	0,6594	0,5029	0,6692	0,6971	0,5316	0,6200	-0,0057	0,0035
PAR "Veleten"	0,5917	0,6335	0,5104	0,6318	0,5958	0,5709	0,6187	0,0013	-0,0043
PAR "Shaliginske"	0,1864	0,2089	0,1503	0,1736	0,1798	0,1531	0,1639	0,0489	-0,0024
PAR AF "Lan"	0,1693	0,2317	0,1625	0,1700	0,1546	0,1487	0,1502	-0,0525	0,0033
PAR "Vitchizna"	0,1907	0,2134	0,1570	0,1651	0,1808	0,1639	0,1683	-0,0726	0,0042
PAR "Vesna-agro"	0,1852	0,2049	0,1418	0,1637	0,1740	0,1505	0,1644	-0,0627	0,0035
PAR "Psyol"	0,6546	0,7021	0,5091	0,6042	0,6198	0,5423	0,6215	-0,0149	0,0012
PAR "Slavgorod"	0,7921	0,6075	0,6813	0,7516	0,7209	0,6817	0,7321	-0,0008	0,0003
PAR "Dovira"	0,1643	0,1956	0,1500	0,1623	0,1671	0,1426	0,1698	-0,0477	0,0157
PAR "Bishkinske"	0,8002	0,7421	0,6015	0,7308	0,7280	0,6913	0,7425	-0,0007	0,0005
PAR "Beevo"	0,6624	0,6803	0,5729	0,6421	0,6419	0,5526	0,6204	-0,0168	0,0027
COOP AF "Semenivska"	0,6819	0,6129	0,5103	0,5938	0,6073	0,5431	0,6197	-0,0173	0,0030
COOP "Kolyadinets"	0,1563	0,2018	0,1392	0,1605	0,1632	0,1532	0,1633	-0,0464	0,0073
PE "Zasulya - 5"	0,4728	0,5032	0,3121	0,4013	0,4253	0,2149	0,2856	0,0121	-0,0022
PE AF "Korovintsi"	0,3916	0,4500	0,2916	0,3842	0,3811	0,2463	0,2906	0,0196	-0,0039
PAR "Bakirivske"	0,3725	0,4016	0,3219	0,3659	0,3662	0,2306	0,2785	0,0185	-0,0029
PAR "Garden"	0,1644	0,1859	0,1300	0,1603	0,1606	0,1459	0,1544	-0,0457	0,0065
PAR "Voskhod"	0,1539	0,1960	0,1535	0,1591	0,2115	0,1411	0,1516	-0,0657	0,0049
PAR "Viol-biznes"	0,8116	0,6594	0,6123	0,7422	0,7205	0,7100	0,7317	0,0001	-0,0002
COOP "im. Bratasha"	0,8203	0,7018	0,6216	0,7735	0,7428	0,7294	0,7509	0,0001	-0,0002
COOP "Zorya"	0,1399	0,2003	0,1297	0,1404	0,1501	0,1315	0,1453	0,0571	-0,0092
COOP "Chernatzke"	0,4217	0,3452	0,3948	0,4518	0,4100	0,2518	0,3016	0,0121	-0,0072
COOP "Romashkove"	0,1536	0,1986	0,1429	0,1630	0,1632	0,1493	0,1562	0,0621	-0,0087
COOP AF "Pershe travnya"	0,6955	0,7064	0,5938	0,6426	0,6615	0,2311	0,2905	0,0228	-0,0095
PAR AF "Krinitsia"	0,6243	0,5508	0,4315	0,5924	0,5614	0,3297	0,4813	0,0476	-0,0070
PE "Garant"	0,1764	0,2135	0,1644	0,1905	0,1856	0,1694	0,1700	0,0567	-0,0010
PAR "Mayak"	0,1657	0,2041	0,1586	0,1639	0,1714	0,1532	0,1687	0,0167	-0,0021
COOP AF "Zhovten'	0,5389	0,6027	0,4953	0,5516	0,5467	0,3318	0,4732	0,0145	-0,0019
PAR "Progres"	0,5026	0,5433	0,4016	0,5043	0,4910	0,3401	0,4564	0,0143	-0,0021
PAR AF "Mriya"	0,8921	0,7312	0,6229	0,7842	0,7737	0,7859	0,7918	-0,0007	0,0005
PAR "Ukraine"	0,6021	0,4035	0,5030	0,6359	0,5527	0,5113	0,5601	-0,0145	0,0052
PE "Nadiya"	0,4734	0,5108	0,4321	0,4485	0,4651	0,2204	0,3003	-0,0357	0,0049

Source – own research.

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Symbols: K1.1 – coefficient of harmonious intellectual and professional activity of personnel in solving marketing problems; K1.2 – the coefficient of harmonious social and personal activity of personnel in solving marketing problems; K1.3 – the coefficient of harmonious behavioral activity of personnel in solving marketing problems; K1.4 – the coefficient of harmonious functional activity of personnel in solving marketing problems; K2 – the overall coefficient of professional activity of personnel in solving marketing problems; K3.1 – coefficient of harmonious attractiveness of the enterprise; K3.2 – coefficient of harmonization of the competitiveness potential of the business entity in agriculture; F1 – function of the equilibrium state of the business entity in agriculture (on the example of grain production); F2 is a function of the survival potential of business entities in agriculture (on the example of grain production).

Decoding of data: Normative scale for assessing the professional activity of personnel and marketing potential: 0-0.17 - low level; 0.18-0.32 - a level below average; 0.33-0.50 – average level; 0.51-0.62 - a level above average; 0.63-0.82 – high level; 0.83-1 is a very high level. Normative scale for assessing the equilibrium state of the enterprise and the survival potential of the business entity in agriculture in wartime conditions: $x_j > 0$; $x_j < 0$ – low level; $x_j \approx 0$ – intermediate level; $x_j = 0$ – high level.

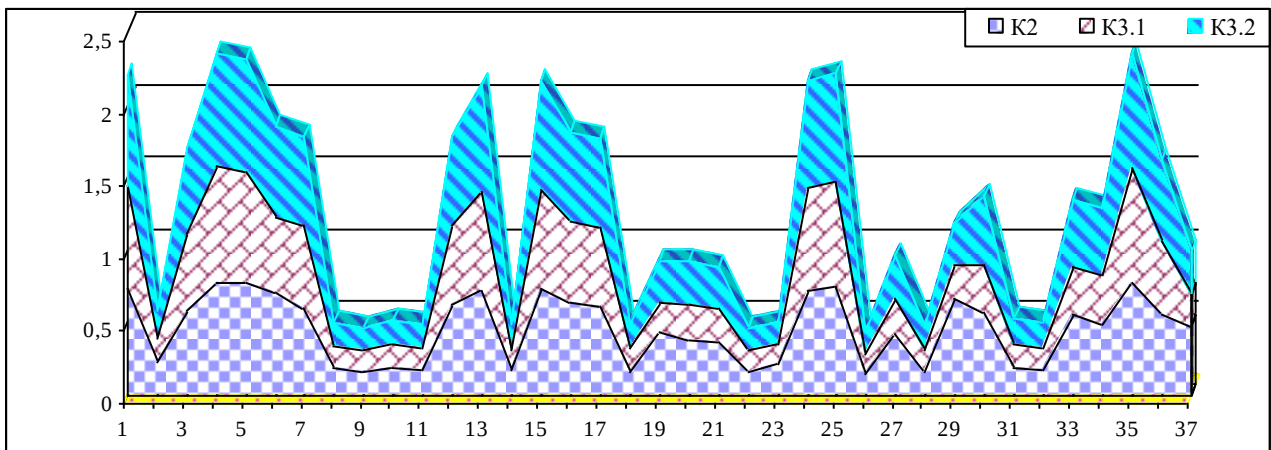


Figure 1. Results of the assessment of the general professional activity of personnel and the marketing potential of business entities in agriculture (Information source – own research)

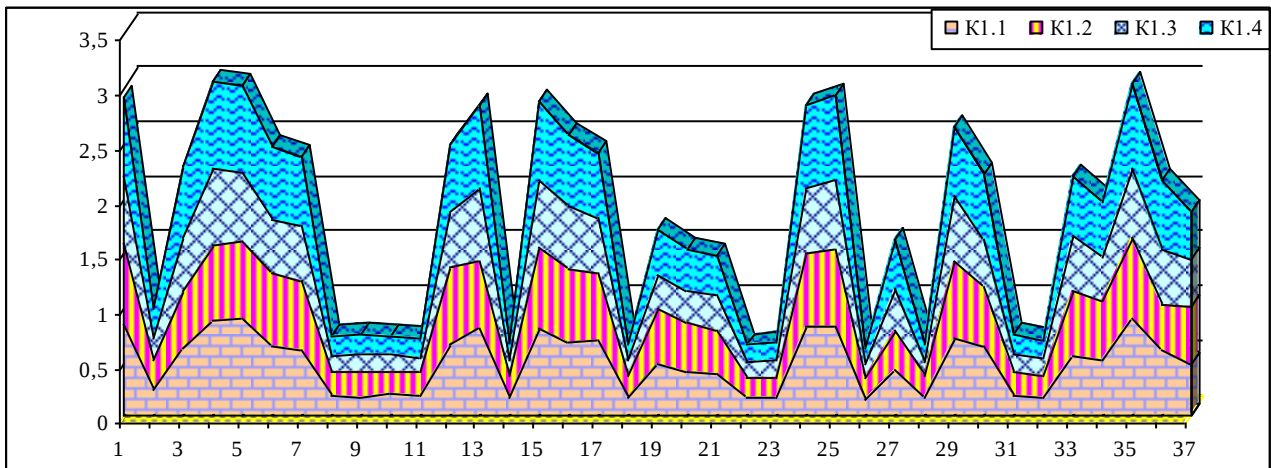


Figure 2. The results of the assessment of the harmonious activity of personnel in solving the problems of marketing of business entities in agriculture (Information source - own research)

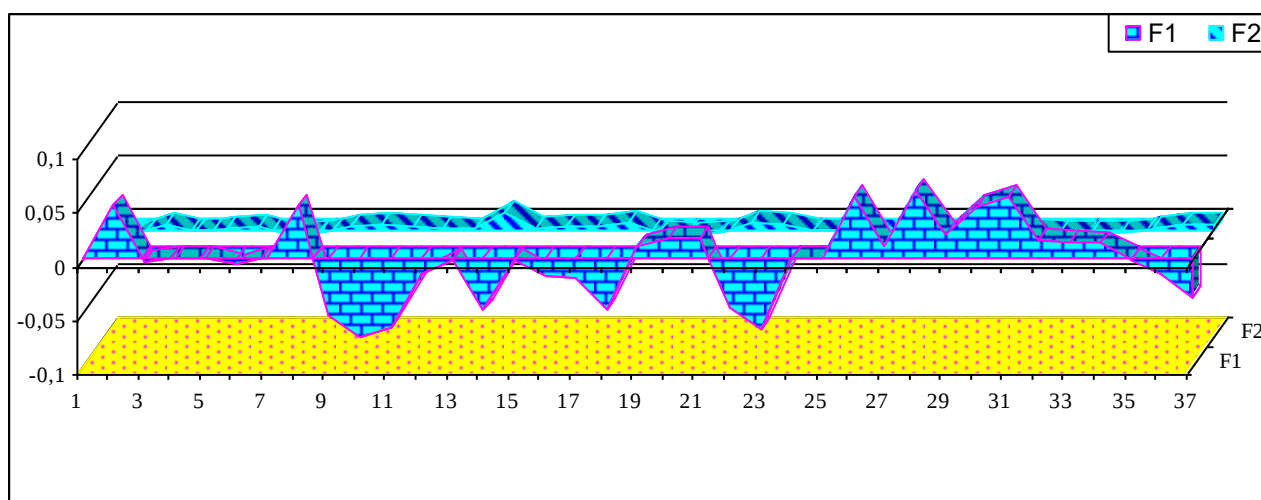


Figure 3. The results of the assessment of the equilibrium state and the survival potential of business entities in agriculture (Information source – own research)

Thus, in the process of research, the following was established. 1. Features of the adaptive approach in the management system of the business entity in agriculture are associated with the development and implementation of the most effective strategies for the reflection by the current business entity and its network structures of environmental impacts. 2. Adaptation measures in the management system of the business entity in agriculture include ensuring high maneuverability and flexibility of the goals of the development strategy of the business entity through the processes of active and passive adaptation; maximum convergence of economic interests of the administration of the business entity and employees; optimization of the level of risk of decision-making and maneuvering of resources; the use of economic and mathematical methods and diagnostic models that increase the efficiency of managerial decision-making, and others. 3. Features of marketing research are related to the level of harmonious participation of management personnel and harmonization of relations between production and commercial activities of a business entity. 4. Approbation of the assessment of the professional activity of personnel in solving the problems of marketing, marketing potential, equilibrium state and survival potential on the example of specific business entities made it possible to modify the methodology and take into account the results of the assessment in the diagnosis of the processes of adaptation of the economic mechanism of the functioning of business entities in agriculture. Prospects for further scientific developments in this direction are associated with the

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construction of an integrated system for diagnosing the mechanisms of adaptive management, harmonizing marketing research, increasing capitalization, ensuring competitive advantages and the adaptive status of a business entity in agriculture.