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ENTERPRISE'S STRUCTURAL COMPONENTS ANALYSIS UNDER PRE-ADAPTATION

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Absrtact: *The necessity for enterprises is to respond to challenges of external environment and to involve pre-adaptation measures is substantiated in the paper. The enterprise's structural components have to be analyzed at the enterprise's pre-adaptation within production and economic organization (PEO); they are identified and described. They are as follows: financial, personnel, technological, managerial, informational and marketing ones. The enterprise's management subsystems are characterized as well. Indicators needed for assessing the efficiency of the management subsystems of the enterprise within PEO at the pre-adaptation stage and the ones for analyzing the enterprise's structural components at the same stage are offered.*

Keywords: *pre-adaptation, production and economic organization, analysis, indicators, external environment*

INTRODUCTION

In order to maintain its viability, the enterprise must respond to the threats being faced with or adapt to them before they harm the activity of the company. Therefore, there is a necessity for the enterprise to involve pre-adaptation (the quality or adjustment of the researched object, which potentially possesses an adaptive value). The pre-adaptation makes it possible to describe the mechanism of components' functions change under evolution and to explain the paradox of new elements creation, the final function of which did not originally possess the adaptive value. Within the pre-adaptation it is possible to solve such problem of the evolutionary theory as the inability of complex adaptations development that is able to function effectively only being well-formed.

MATERIALS AND METHODS

The industrial enterprise's adaptive development within PEO, which is a form of economic organization that incorporates different by their ownership, legal form, production and commercial activity industrial enterprises and other companies, e.g., banks, financial institutions etc. (Aliieksieiev, 2002), at the pre-adaptation stage involves the use of analysis as a method for identifying problems that may emerge during the development of each

company within the PEO based on its structural components analysis. The issues concerning the enterprises development and management, socio-economic preconditions and mechanisms of their adaptation to changes and challenges of the external environment are being researched by Ukrainian and foreign scientists. Among the ones who have made significant contribution to the development of the problem stated or some aspects, are: R. Ackoff, I. Ansoff, S. Beer, K. Chaharbaghi, P. Doyle, P. Drucker, K. Kearns, M. Khan, R. Mason, D. North, M. Porter, V. Srahovych, J. Stiglitz, R. Feurer, I. Alieksieiev, A. Amosha, B. Andrushkiv, M. Budnik, M. Chumachenko, Ye. Halushko, T. Horokhova, T. Hrynko, I. Hroznyi, T. Klebanova, S. Kudlaienko, Ye. Kuzkin, O. Kuzmin, M. Kyzym, T. Landina, R. Lepa, A. Melnyk, Yo. Petrovych, O. Pushkar, O. Raievnieva, L. Salomatina, V. Stasiuk, Yu. Stepanova, O. Trydid, V. Tymokhin, A. Turylo, etc.

The purpose of our article is to analyze enterprise's structural components and management subsystems effectiveness at the pre-adaptation stage.

RESULTS

Analysis of problem situations identification at the industrial enterprises in their development process involves the application of the system, process, resource and functional approaches' principles. The use of the advantages of these approaches makes possible to determine the components to be analyzed at the enterprise's pre-adaptation within PEO (*Table 1*).

Table 1

Description of the enterprise's structural components within the PEO

Component	Description
Financial	Investment in R&D, intangible assets, sources of financing, financial stability, autonomy, investment attractiveness, liquidity and solvency
Personnel	Structure of staff, share of the intellectual staff (programmers, researchers, technologists) in the total amount of employees, age, labor turnover
Technological	Modern and innovative information technologies, level of labor automation, informational support, share of advanced technologies and production
Managerial	Organizational structure of the company, quality management system, organizational culture, effective use of specifications and documentation. Modern forms of industrial organization and management of the company
Informational	Combination scientific and technological information with information about development, use of advanced production techniques, technological inventions, equipment, computer systems in production management, scientific and technical documentation in the form of reports, regulations and other design and architect-engineering documentation, information on the level of technological production activities of competitors
Marketing	Collection and analysis of data about competitors, their activities, product mix, prices, consumers, demand, development of marketing measures

Source: completed by author

The PEO's ability to new conditions depends on the managerial subsystems' components efficiency of the enterprises within the PEO: financial, organizational, marketing, personnel and production ones (*Table 2*).

Table 2

Management subsystems of the enterprise within PEO at the pre-adaptation stage

Component	Characteristics
Managerial	Measures the effectiveness of organizational and managerial structure of the company, manufacturing processes regulation
Marketing	Determines the market share, market capacity, market saturation, activities of competitors
Financial	Shapes the provision of enterprise with necessary resources, ability to finance long-term investment projects and new products production
Production	Level of technical and technological development of the company, level of fixed assets physical deterioration and obsolescence
Personnel	Effectiveness of the personnel (both basic and auxiliary staff)

Source: completed by author

Based on the studies (Hevlych, 2005; Demchenok, 2011; Derii, 2014; Zonzov, 2002; Hiliarovskaia, Korniakova, Ptaskova and Sokolova, 2002), it is possible to determine indicators for analyzing the components of the enterprise within the PEO at the pre-adaptation stage (*Table 3*).

Table 3

Indicators for analyzing the structural components of the enterprise within the PEO at the pre-adaptation stage

Indicator	Formula	Normative value
Financial component		
Sum of enterprise's costs for R&D, implementation of technology and pilot production Crd and costs for technical support Ct in total production costs TC	$S_1 = (Crd + Ct)/TC$	3%
Production costs on high technology products Cprod	$S_2 = Crd/Cprod$	2,5-3,5%
Share of costs for production by progressive facilities Cpf in the cost structure for its technical maintenance Ctm	$S_3 = Cpf/Ctm$	
Share of costs for intangible assets Cia in the structure of the enterprise's costs for R&D, development of technology and pilot production	$S_4 = Cia/Crd$	
Share of costs for personnel training Cpt in the total amount of the enterprise's costs for R&D, development of technology and pilot production	$S_5 = Cpt/Crd$	
Share of governmental funding of internal and external technological developments, the volume of government investment Gf in the structure of the enterprise's costs Crd	$S_6 = Cf/Crd$	
Personnel		
Share of employees involved in the R&D Prd in the total staff Pt	$S_7 = Prd/Pt$	12%
Number of high skilled personnel Phs in the total staff involved in the production of advanced products	$S_8 = Phs/Pt$	5%
Wages rate of staff involved in the advanced production Wap relatively to the wages of other employees We	$S_9 = Wap/We$	>1

Technological component		
Share of advanced equipment Ead in the total enterprise's production equipment fleet Et	$S_{10} = Ead/Et$	25-35%
Share of the advanced equipment and its technical support Eadts in the total enterprise's production equipment fleet	$S_{11} = Eadts/Et$	65%
Share of upgraded equipment by technological criteria Eup in the total enterprise's production equipment fleet	$S_{12} = Eup/Et$	40%
Informational component		
Share of costs for informational support of enterprise and software Cis in the cost structure for computerization of production Cc	$S_{13} = Cis/Cc$	>2
Share of personnel involved in the informational provision and software support Pip in the total number of personnel involved in the R&D	$S_{14} = Pip/Prd$	
Marketing component		
Indicator of new products sales in the market Ms	$S_{15} = Ms/Vw$	
Share of innovative products Vip in the total output Vo	$S_{16} = Vip/Vo$	>40%
Return on sales of new products (ratio of profit from sales of new products PRip to the cost of the sold goods Cs)	$S_{17} = PRip/Cs$	

Source: completed by author

Further, the indicators characterizing the efficiency of the management subsystem of the enterprise within PEO at the pre-adaptation stage are to be calculated (based on DeMark, 1994; Klymenko, 2010; Kryvozviaziuk, 2011; Lazaryshyna, 2006; Leleka, 2003) in *Table 4*.

Table 4

Indicators characterizing the efficiency of the management subsystems of the enterprise within PEO at the pre-adaptation stage

Indicator	Formula	Variables
Managerial subsystem		
Share of administrative staff in the total amount of employees	$q\,man = Ap/P$	Ap is administrative and management staff; P is average number of staff at the enterprise
Effectiveness of the staff management	$E\,aman = PRg/Ap$	PRg is gross profit
Marketing subsystem		
Return on sales	$ROS = PRn/TR$	PRn is net profit; TR is total revenue
Market share	$MS = Uent/Umar$	Uent are units sold by the enterprise; Umar is total market unit sales
Financial subsystem		
Current ratio	$CR = CA/CL$	CA is current assets; CL is current liabilities
Financial autonomy ratio	$R\,aut = Ko/TA$	Ko is own funds; TA is total assets
Profit margin ratio	$Npr = PRn/Sn$	Sn is net sales
Production subsystem		
Depreciation to fixed assets ratio	$Dfa = D/FA$	D is depreciation; FA is fixed assets at the beginning of period
Capital productivity	CP = TR/Vfa	Vfa is value of fixed assets

Source: completed by author

By analyzing the components of the enterprises within the PEO and their management subsystems efficiency, it is possible to conclude about the development level of the enterprise's functional identity and on which direction the company may potentially develop in terms of adaptation.

DISCUSSION AND CONCLUSIONS

The task for problem situations timely response in the process of enterprises within PEO adaptation to external environment is caused by the fact that the pace of the company's external environment change is faster than the management system reaction to them. Thus, the enterprise's structural components and management subsystems effectiveness at the pre-adaptation stage within PEO are analyzed. At this stage, such an analysis allows to assess the dynamics of the basic parameters of the enterprise functioning in a time interval and, thereby, determine the main directions of the enterprise successful development within the PEO.

REFERENCES

1. Alieksieiev, I.V. (2002), Strategies and regulation for industrial-economic structures innovation development, Author's abstract of dissertation for a doctorate degree, Institute for Economics and Forecasting of the National Academy of Sciences of Ukraine.
2. DeMark, T.R. (1994), *The New Science of Technical Analysis*. New York: John Wiley & Sons.
3. Demchenok, T.A. & Lysenko, N.O. (2011), Economic analysis methods and their features, *Actual Problems of Economics*, No. 2(116), pp. 179-184.
4. Derii, V. (2014), The problems of science and techniques of teaching and practice of economic analysis, *Accounting and Auditing*, No. 6, pp. 3-11.
5. Hevlych, L.L. (2005), Using strategic diagnostics in developing business strategy, Author's abstract of dissertation for a philosophy doctor, Volodymyr Dahl East Ukrainian National University, Luhansk.
6. Hiliarovskaia, L.T., Korniakova, H.V., Ptaskova, N.S. & Sokolova, H.N. (2002), *Ekonomichieskii analiz* [Economic analysis], textbook, 2nd ed. Moscow.
7. Klymenko, S.Ye. (2010), Approaches to processing industry enterprises restructuring, *Stock market*, Vol. 39, pp. 30-36.
8. Kryvozviaziuk, I.V. (2011), The crisis in the Ukrainian economy and its relationship to recurrence, *Stock market*, Vol. 7, pp. 20-27.
9. Lazaryshyna, I.D. (2006), Economic analysis: theory, methodology, practice, Author's abstract of dissertation for a doctor of economic science degree, Ternopil State Economic University, Ternopil.
10. Leleka, V.V. (2003), Comparative statistical study of scientific and technical, industrial and trade potential of power mechanical engineering of Ukraine, *Statistics of Ukraine*, No. 2, pp. 46-52.
11. Zonzov, V.I. (2002), Economic choice and models for its analysis, *Stock market*, No. 44, pp. 21-25.