

ISMA
AN NO 1 994

Mechanisms of interaction
between competitiveness and innovation
in modern international economic relations

Collective monograph edited by M. Bezpartochnyi



ISMA University Riga, Latvia
2017

Mechanisms of interaction between competitiveness and innovation in modern international economic relations

**Collective monograph edited by
M. Bezpartochnyi**

**ISMA University
Riga (Latvia)**

Mechanisms of interaction between competitiveness and innovation in modern international economic relations: collective monograph / edited by M. Bezpartochnyi, in 4 Vol. / ISMA University. - Riga: «Landmark» SIA, 2017. - Vol. 4.-250 p.

The authors of the book have come to the conclusion that it is necessary to effectively use the management approaches to regulate modern international economic relations, methodological tools for analyzing international competitiveness and innovation. Basic research focuses on assessing the level of intellectual capital, incentives for entrepreneurship, human potential and labor market regulation, monitoring of solid biofuels market, transparency of budget process, analysis of corruption in country. The research results have been implemented in the different models of investment activities of insurance company, ensuring economic equilibrium, international security, corporate strategic financial management, use of recursive modeling, management of national security strategy, introduction of innovations in agricultural sector, development of export capacity, formation of a strategy high-tech innovation development in the EU countries. The results of the study can be used in decision-making at the level of international business, ministries and departments that regulate international relations, ensuring security and overcoming risks. The results can also be used by students and young scientists in modern concepts of the formation of international economic relations in the context of ensuring the competitive advantages of actors and improving innovation policy.

Reviewers (international scientific editorial board):

Dr. Remigijus Kinderis - PhD, Director Deputy for Strategic Development, Academic Council Chairman, Klaipeda State University of Applied Sciences, Lithuania

Mariana Petrova — PhD, Assoc. Prof, Director of Education Technologies Center, St. Cyril and St. Methodius University of Veliko Turnovo, Bulgaria

The collective monograph is approved for publication at the meeting of the Scientific Council of the Information Systems Management University of 18th December 2017, Minutes No. 2-17.

Reproduction or citation reference is mandatory.

**Mechanisms of interaction
between competitiveness and
innovation in modern
international economic
relations**

Contents

INTRODUCTION	9
Chapter 1	
ENSURING COMPETITIVENESS OF BUSINESS ENTITIES IN MODERN INTERNATIONAL ECONOMIC RELATIONS.....	10
Azarova A., Rybko N., Fedorova L, Kahliak O.	
Evaluation of the intellectual capital level as a basis of competitiveness increasing.....	10
Dyba V., Kapustian V.	
Conceptual model of the investment activity of the life-insurance company taking into account the delay in obtaining investment income	20
Gladchenko A., Valiullina Z.	
Corporative models providing for economic balance in present-day international economic relations	27
Iefimova G., Marushchak S.	
Modeling of the enterprise's economic safety	36
Khrushch N., Forkun I.	
Government incentives for entrepreneurship as a tool for securing its competitiveness at the international market.....	45
Kucherova H., Kravets O.	
Recursive modeling of the amount net income of small enterprise subjects as an instrument for providing their competitive capacity	54

Poplavska Z., Komarynets S.	
Ukrainian economy's competitiveness and preconditions for its increase	65
Shtan M.	
Competitiveness of the national economy in global dimension	75
Chapter 2	
MECHANISMS FOR ENSURING COMPETITIVENESS IN THE INTERNATIONAL LABOR MARKET AND PERSONNEL MANAGEMENT	83
Chychun V.	
The importance of influence of the competitiveness on personnel of enterprises	83
Klymchuk A.	
Personnel payment organization of machine-building enterprises in motivation and stimulation formation	92
Kuriy L.	
Mobility of human potential in ensuring its competitiveness	100
Paustovska T.	
Regulation of labor market in conditions of modern world competition	110
Chapter 3	
FORMATION OF INNOVATIVE MECHANISMS FOR AGRICULTURAL DEVELOPMENT	119
Melnyk O., Bodnar O., Pokrovska O.	
Features of influence of innovative entrepreneurship on the development of agricultural sector of economy.....	119
Samoilyk Iu.	
Development indicators of agricultural sector in the world	128

Zelenskiy A.

Financial regulation of the agrarian sector of Ukraine: genesis, theoretical and practical aspects..... 137

Chapter 4

USE OF MECHANISMS FOR ENSURING INTERNATIONAL SECURITY OF COUNTRIES147

Aleksin G.

Competition barriers and drivers in the context of corporate strategic financial management in Ukraine 147

Fedulova S.

Regionalization and multipolarity of the modern world 156

Momot T., Vashchenko O., Chekh N., Vershynina D., Momot D.

Corruption as an inevitable element of oligarchic system of state: reforms and institutions (evidence from Ukraine)..... 167

Omelyanenko V.

Conceptual basis of national security strategy management through the innovation component..... 183

Yakubiv V., Maksymiv Y., Popadynets N., Hryhoruk I.

Market of solid biofuels in Ukraine: the foundation of energy safety strengthening in Ukraine 193

Chapter 5

FORMATION OF COMPETITIVE ADVANTAGES AND USE OF INNOVATIONS BY BUSINESS ENTITIES IN THE CONTEXT EUROPEAN INTEGRATION.....202

Andreev B., Brovko D., Khvorost V., Tyshchenko V.

Ensuring competitive capacity on the international security market of objects by implementing technological innovations 202

Dovgal E., Taran A.

Features of the strategy high-technological innovation development of Germany in the EU economic system..... 211

Pustova N.

Development of export potential of agricultural complex of Ukraine in the context of modern integrated conditions 221

Chapter 6

**NORMS OF INTERNATIONAL LAW AND EUROPEAN UNION
LAW IN THE PROCESS ENSURING COMPETITIVENESS AND
INTRODUCTION INNOVATIONS.....228**

Savastieieva O.

Determination of transparency of budget process in international standards as basis for increasing competitiveness of the country 228

Shulga O.

Strategic priorities of agrarian policy of Ukraine in the global competitive environment237

CONCLUSION247

Klymchuk A.O.

Candidate of Economic Sciences,
Associate Professor of the
Department of management of
foreign economic activity, hotel
and restaurant business and
tourism, Vinnytsia National
Agrarian University, Ukraine

**PERSONNEL
PAYMENT ORGANIZATION
OF MACHINE-BUILDING
ENTERPRISES IN
MOTIVATION AND
STIMULATION
FORMATION**

One of the most important preconditions of ensuring effective management of the company is the implementation of effective motives and incentives to arrange the payment of personnel. Development of the optimal system of motives and incentives will boost the work activities of personnel, which is particularly important in conditions of unstable financial and political situation in our country. Ensuring the stability of production activity of machine-building enterprises in modern conditions requires the system of motives and incentives in payment arrangements, which will ensure the achievement of high staff motivation to work.

Considering the fact that some companies in Khmelnytskyi and Vinnytsia oblasts have certain problems in the arrangement of payments, there is an urgent need to find solutions to the existing situation which involves the development of effective forms and systems of motives and incentives in payment at machine-building enterprises.

Problems of payment as an effective component of material stimulation and motivation of personnel were handled by such eminent scientists as: O.S. Bilichenko, D.P. Bohynia, V.I. Blonska, A.V. Kalyna, M.I. Karlin, O.M. Krasnonosova, V.M. Nyzhnyk, Y.V. Malakhovskiy, V.S. Medvediev, M.V. Semykina, A.O. Shevtsova, O.I. Yashchenko and many others.

In scientific researches, there is still a lot of unsolved questions about the search for effective ways of formation of motivation and stimulation of personnel at machine-building enterprises which involve an efficient arrangement of payments to the staff.

This article aims to analyze the arrangement of remuneration at machine-building enterprises, to perform quantitative indicators in the assessment of the payment arrangement and performance of staff

identifying the main problems of machine-building enterprises, to identify the main strategic components of motivation and stimulation of personnel with the development of proposals for their improvement.

Among the important quantitative indicators in the assessment of the payment arrangement and performance of staff, there are wage-to-product ratio, share of wage in product costs and labour-consuming of products.

Thus, according to the results of calculations carried out using the company financial statements, the share of wages in product costs at the machine-building enterprises of Vinnytsia and Khmelnytskyi oblasts selected for the analysis was an average of 25 %. This trend is unequivocal proof that the staff of the majority of domestic companies lacks incentive to improve their performance. When, after the effort made by the employee, he does not get a proper evaluation, there is a strong inhibition of the development of industrial production which will undoubtedly affect the socio-economic development of our country.

PJSC "Plant "Temp" has the lowest level of wage-to-product ratio, where the value of this indicator in 2016 was 0.08. In the same year, the company was outrun with a small margin by PJSC "Mayak" – 0.11; PJSC "Ukrelektroaparat" – 0.13 and PJSC "Yampil'skyi Instrument Engineering Plant" - 0.16. The highest value of the wage-to-product ratio in 2016 was characteristic of SE "Novator" – 0.32.

It should be noted that the companies with increased wage-to-product ratio are characterized by the presence of negative processes in economic activities since the trend determines the decrease in the proportion of funds available for the company that the company could spend to cover other expenses, also by the application of profits due to which funds are directed to financing innovative activities which are extremely important for machine-building enterprises of Khmelnytskyi and Vinnytsia oblasts. Among the possible solutions to reduce wage-to-product ratio, preference should be given to those aimed at increasing production and sales of products, increasing staff performance, instead of decreasing payroll by reducing the level of payments to the staff. Such ways of improving the performance of personnel shall include the formation of a rationally planned and arranged measures of motivation and

stimulation of personnel capable to increase their performance on the basis of minimizing the unproductive losses of working hours, reducing the level of defective products, the basis for which should be the efficiency of personnel management within the company [1, p. 109-111].

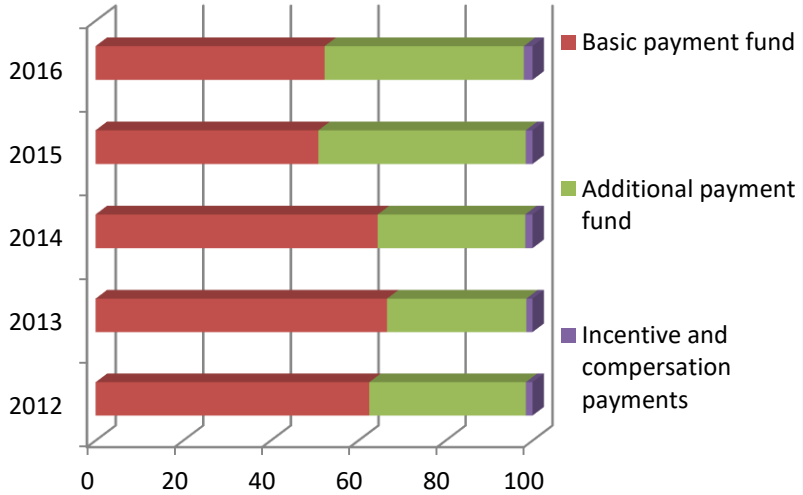
An important condition for the formation of motives and incentives in the arrangement of remuneration capable of providing high profits to the company, enhancing competitiveness and entering new markets is to reduce the labour-consuming of products. According to the data analysis, machine-building enterprises in Khmelnytskyi and Vinnytsia oblasts are quite labour-consuming [2-4]. Thus, during 2012–2016, the average value of labour-consuming of products at SE "Novator" was 8.93 man-hour/thousand UAH; for PJSC «Ukrelektroaparat» – 3.43 man-hour/thousand UAH; for PJSC «Yampil'skyi Instrument Engineering Plant» – 14.07 man-hour/thousand UAH; for PJSC «Mayak» – 7.01 man-hour/thousand UAH.

Among the measures aimed at the reduction of labor-consuming of products in modern conditions of development of machine-building enterprises, it is advisable to include the introduction of achievements of scientific and technical revolution, advanced technologies (their availability at companies is determined by foreign investment and strong domestic investments), efficient use of the worktime fund, formation of effective systems of remuneration, ensuring high performance of personnel, which together will ensure the formation of favorable conditions for the development of the mechanism of evaluation, motivation and stimulation of personnel [5].

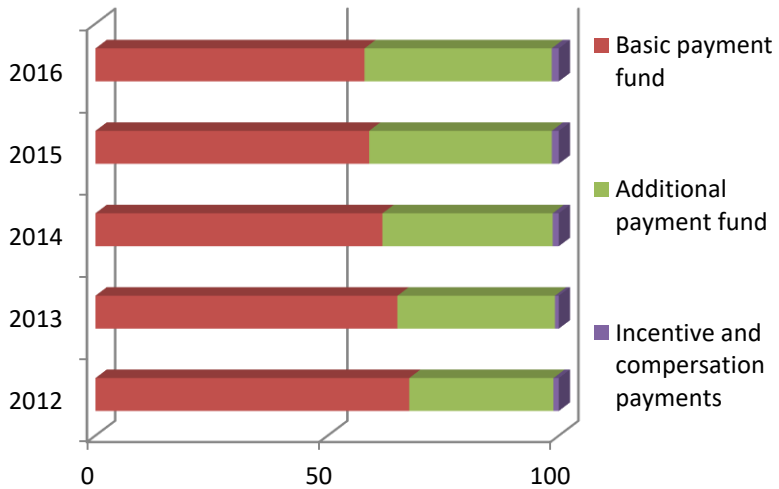
According to the analysis of the financial statements of the studied companies, the primary system-forming component of motivation and stimulation of personnel is the wage, changes in the amount of which are shown in Fig. 1. Thus, the specific weight of the basic wage varies at the studied companies within the range of 60 to 77 %. Thus, its lowest share is at SE "Novator", where the mean value for five years was 59.31 %, while the highest is at PJSC "Yampil'skyi Instrument Engineering Plant" – 68.39 %.

The specific weight of the extra wage ranges from 17 to 47.6 %.

SE "Novator"



PJSC "Ukrelektroaparat"



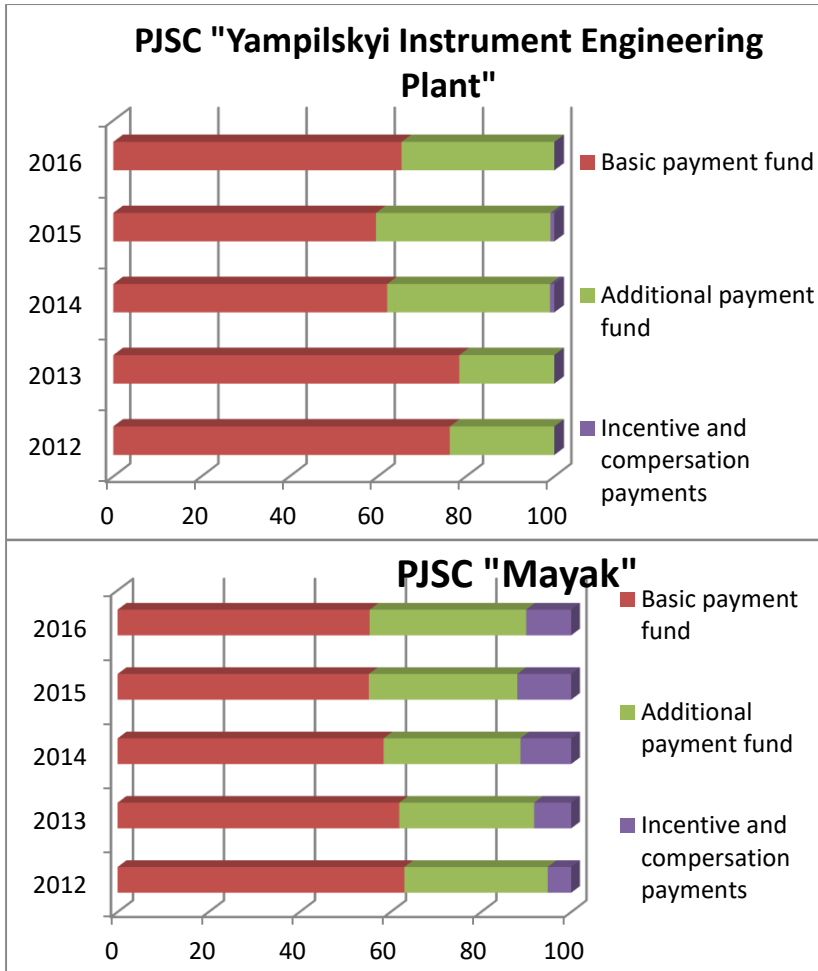


Fig.1. Growth rate of the basic and extra wages, incentive and compensatory payments to the staff at machine-building enterprises during 2012-2016, %

* based on the results of financial statements of the companies

Its lowest level in the payroll is observed at PJSC "Yampil'skiy Instrument Engineering Plant" – from 21.10 to 37.68 %, whereas the

highest level over these years from 32.04 to 47.58 % is observed at SE "Novator" (over five years at SE "Novator" – average of 39.05 %; PJSC "Ukrelektroaparat" – 36.46 %; PJSC "Yampil'skiy Instrument Engineering Plant" – 27.91 %; JSC "Mayak" – 31.86).

The specific share of bonuses and rewards in the payroll was an average of 24.40 % at SE "Novator" over the analyzed period, 3.65 % at PJSC "Ukrelektroaparat"; 7.10 % at PJSC "Yampil'skiy Instrument Engineering Plant", 19.80 % at PJSC "Mayak".

At the same time, the accrual of bonuses and allowances at the studied companies also varies within the range of 2.36 % at SE "Novator" to 10.89 % at PJSC "Yampil'skiy Instrument Engineering Plant". The share of incentive and compensatory payments averagely ranges from 1.29 % at PJSC "Ukrelektroaparat" to 9.34 % at PJSC "Mayak".

Therefore, the increase of the share of extra wages and incentive compensatory payments is an indisputable evidence of increased level of motivation of the personnel. That is why, the best indicators in the formation of motives and incentives in the arrangement of payments belong to PJSC "Mayak", where the share of extra wages and incentive and compensatory payments during the period of 2012-2016 within the structure of payments was an average of 41.2 % (SE "Novator" – 40.69 %; PJSC "Ukrelektroaparat" – 37.75 %; PJSC "Yampil'skiy Instrument Engineering Plant" – 31.29 %).

Therefore, based on this analysis, we can say that carefully arranged remuneration of labour, which includes a wage, its structure and dynamics, is of great importance in the formation of motives and incentives in the arrangement of payments to the staff, which significantly impacts the improvement of the staff performance. Using bonuses and awards, allowances and other payments, the company can motivate its personnel to improve the performance of production activities. Under such conditions, the main task of the company managers is to adopt rational decisions regarding the definition of factors and criteria of motivation, as well as establishing relationships between indicators that reflect the business performance and indicators of motivation and stimulation [6].

The precondition for ensuring high motivation of personnel to production activities is the determination of stimulating factors for its work activation. As the experience of foreign countries shows, the

systematic improvement of the forms and systems of motives and incentives in the payment arrangements, involvement of various forms of material incentives, increased motivation of the staff to high performance activities brings together the interests of both employees and the company itself in addressing the challenges of ensuring effective company development [7; 8]. Effective management of the company, receipt of high profits, ensuring its competitiveness, access to new markets is not only determined by the involvement of innovation through the adoption of radical new technical solutions and introduction of advanced technologies [9], but also, which is extremely important, by the development of new approaches to motivate the company employees in implementing regular technical and economic changes at production, by gaining support and active involvement of the personnel in carrying out quality improvements. This engagement of the personnel will allow to focus on the creation and use of intangible resources of the company for its effective development and prosperity [10].

According to the study results, it is appropriate to introduce material incentives for the development and implementation of proposals and recommendations aimed at improving the competitiveness of manufactured products at the studied companies. Based on the above, it is extremely important to introduce a systematic approach to increasing industrial activities of the staff, which will ensure the system of material incentives in such a way that the rate of remuneration of the employee will be established based on the labor contribution taking into account potential opportunities. At the studied companies, assessment of the effectiveness of the current system of payment arrangement should be determined on the basis of the achieved degree of implementation of the system of ongoing training, where in most cases the employees learn new professions and improve their skills directly at the workplace. For the effective operation of this system, it is important that at least 50 % of the personnel is engaged in ongoing training, which may indicate the possibility of increasing company profits through the creation of well-functioning work within the current system of motivation and stimulation of the personnel and ensuring the effective management of the company. Instead, the share of employees that mastered new professions and improved their

qualifications at the studied companies was within the range of 5-10 %.

Therefore, with the purpose of formation of motives and incentives in the arrangement of payments to the personnel, it is extremely important to consider the data obtained on the basis of the analysis, to exercise external stimulating influence on the personnel activation by improving the factor-and-criterion characteristics of activities of machine-building enterprises.

Among the important quantitative indicators in the assessment of the payment arrangement and staff performance, there are wage-to-product ratio, share of wage in product costs, staff performance and labour-consuming of products.

Thus, the share of wages in product costs at the machine-building enterprises of Vinnytsia and Khmelnytskyi oblasts selected for the analysis was an average of 25 %. PJSC "Plant "Temp" had the lowest wage-to-product ratio, whereas SE "Novator" had the highest wage-to-product ratio in 2016. According to the data analysis, machine-building enterprises in Khmelnytskyi and Vinnytsia oblasts are quite labour-consuming.

Based on the study results, it is possible to say that carefully arranged remuneration of labour, which includes a wage, its structure and dynamics, is of great importance in the formation of motives and incentives in the arrangement of payments to the staff, which significantly impacts the improvement of the staff performance. Thus, the specific weight of the basic wage varies at the studied companies within the range of 60 to 77 %. Thus, its lowest share is at SE "Novator", where the mean value for five years was 59.31 %, while the highest is at PJSC "Yampilskyi Instrument Engineering Plant" – 68.39 %.

Using bonuses and awards, allowances and other payments, the company can motivate its personnel to improve the performance of production activities. Under such conditions, the main task of the company managers is to adopt rational decisions regarding the definition of factors and criteria of motivation, as well as establishing relationships between indicators that reflect the business performance and indicators of motivation and stimulation.

Therefore, the increase of the share of extra wages and incentive compensatory payments is an indisputable evidence of increased

level of motivation of the personnel. That is why, the best indicators in the formation of motives and incentives in the arrangement of payments belong to PJSC "Mayak", where the share of extra wages and incentive and compensatory payments during the period of 2012-2016 within the structure of payments was an average of 41.2 % (SE "Novator" – 40.69 %; PJSC "Ukrelektroaparat" – 37.75 %; PJSC "Yampilskyi Instrument Engineering Plant" – 31.29 %).

Prospects of further studies are the development of the mechanism of evaluation, motivation and stimulation of the personnel in the management of a machine-building company.

References

1. Nyzhnyk, V. M. & Kharun, O. A. (2011). *Mekhanizm motyvatsii vysokoproduktyvnoi pratsi personalu pidpriemstvivo. Khmelnytskyi : KhNU.*

2. *Holovne upravlinnia statystryky u Khmelnytskiy oblasti. Ofitsiyni veb-sait. Retrieved from <http://www.km.ukrstat.gov.ua/ukr/index.htm>.*

3. *Holovne upravlinnia statystryky u Vinnytskii oblasti. Ofitsiyni veb-sait. Retrieved from <http://www.vn.ukrstat.gov.ua/>*

4. *Derzhavna sluzhba statystryky Ukrainy. Ofitsiyni veb-sait. Retrieved from <http://www.ukrstat.gov.ua/>*

5. Bilichenko, O. S. (2012). *Klasychni i suchasni modeli motyvatsii trudovoi diialnosti. Visnyk ahrarnoyi nauky Prychornomia, 4, 119–125.*

6. *Pro Derzhavnyi biudzhet Ukrainy na 2017 rik : zakon Ukrainy vid 21.12.2016 № 1801-VIII iz zminamy i dopovnenniamy, vnesenymy Zakonamy Ukrainy vid 21 liutoho 2017 roku № 1860-VIII, vid 23 bereznia 2017 roku № 1979-VIII. Vidomosti Verkhovnoi Rady Ukrainy. Retrieved from http://search.ligazakon.ua/l_doc2.nsf/link1/T161801.html*

7. Popova, N., & Shynkarenko, V. (2016). *Personnel development at enterprises with regard to adaptation to the VUCA world. Ekonomichnyi Chasopys-XXI, 156(1-2), 88–91. Retrieved from <http://soskin.info/ea/2016/156-1-2/201624.html>*

8. Galli, E. B. (2011). *Das strategische Programm personell besetzen. Strategische Initiativen und Programme.* Gabler Verlag, 143–167.

9. Hellmann, T. F. & Thiele, V. *Incentives and Innovation: A Multi-Tasking Approach.* SSRN Journal, 12. Retrieved from: <http://doi.org/10.2139/ssrn.1301712>

10. *The engineering industry of Ukraine: current trends // the Ministry of industry.* News Agency. Retrieved from <http://minprom.ua/page2/news755.html>