Innovative Properties of the Business Raw Materials Potential Formation and Operation

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ABSTRACT

The paper investigates the transformation of a starting point of the concept potential into the dynamic process from the dialectical perspective, reveals an ontological characteristic of the scientific concept potential, proves methodical approaches in the field of management which are in contact to the constructive research direction of the category of the raw materials potential, reveals a dynamic susceptibility as an innovative feature of a sample frame of resources, considers a transcendental feature as a functional aspect of business controlling activities. The paper, reflecting the results of the scientific research conducted by the authors within several years, uses an integrated methodological approach combining tools of classical systemic, resource-based and effective approaches to study the problem. The resource-based approach, implying a set of available resources of the business entity and being integration-oriented, is aimed at a choice of resources, agreement of resources that means the resource-oriented approach is supported by a target approach. The effective approach both at the stage of the raw materials potential formation and its usage, assumes target figures. The effective approach also considers cumulative resources as a system and all production factors which can provide effective system operation. Revealing a key feature of a sample frame of resources, the authors point out immanent and transcendental properties of resources. The immanent property of resources is shown in their objective capability to interact in an integrated manner and tied together within an economic condition of the raw materials potential. The transcendental property of resources is shown that they act as subjective sources, coordinating and qualitatively organizing immanent resources. Transcendental resources in their subjective sample frame create organizational conditions of the raw materials potential.

JEL Classification: M11, O32, P48, K20.

Keywords: Raw materials potential; raw materials potential elements; innovative properties, immanent and transcendental resources; controlling.

1. INTRODUCTION

Effectiveness of any socio-economic system and solution of numerous problems of the social development during the period of economic reforms are directly correlated to the extensive, detailed estimate procedure of mobilized resources and, in particular, the results of human activities. And one should note here that analysis of the production system efficiency depends on two intertwined positions which are objective and subjective. The objective position reflects possibilities of the system, and the subjective one characterizes human capabilities to use these opportunities. Thus, the operating system effect is determined by the extent of usage of its cumulative potential, and effectiveness is a dependent figure on usage of the available potential.

Therefore, before the raw materials potential will be defined, the concept of *potential* should be define more accurately. The sources of ontological researches of an application environment of the term *potential* are presented by its etymological meaning. So, translated out of Latin the concept *potential* means a strength, force and opportunity. One should note that many modern industry sciences projected a knowledge of the term *potential* from natural philosophy – the energy state of an object, its intensity (Rakhman & Bobkova, 2016). So, in biology the potential is considered as a physicochemical energy of biological modifications. In sociology it is an human energy that is a starting point of a possible energy reaction of other subject; in social science it is a source (physical impulse), an possibility to use fragmental view of scientific knowledge to solve any task in the field of public thinking (Chebykina & Bobkova, 2014, p. 542-551; Galkina et. al., 2015; Nelyubina et. al, 2016; Shatalova & Zhirnova, 2014). However, the initial definition of this concept should be referred to Aristotle's philosophy who considered life as synthesis of a matter and form. The matter is considered as a possibility to live (or *potency*, meaning capabilities to take the form). The form is treated as an *act* to pursue this capability (opportunity). The consolidation of the form and matter gives the act. If the act is investigated from the perspective of the form, then in Aristotle's philosophy it will be *entelecheia* (an intrinsic force, a source the potential which have a chain and final result). If the act will be investigated from the perspective of the matter, then it will be combined potency and act (Chebukina et. al., 2013; Chebykina & Bobkova, 2013; Chebykina & Bobkova, 2014, p. 542-551).

A philosophical aspect of the scientific category *potential* allowed many researchers to characterize the potential in economics as uncertain, non-detailed, latent opportunities. They are capable to be transformed to actual opportunities only as a result of the action (process). The paper considers that a process approach to determine the concept *potential* considerably cuts down its intrinsic characteristics. A dialectic principle of general relationship (interaction between the matter and form) shall come into force here. This provision is validated by Aristotle's concepts of dynamism to the purpose in which he, revealing the form as the main life reason, pointed out (classified) the reasons (mechanism elements), causing changes from the opportunity into reality: formal – the very pinch of the thing; material – a substratum (structure) of the thing; acting – that brings into action (reveals a starting point to the process, sources of the action); target – target figures of actions done.

2. THEORETICAL ANALYSIS

A dialectic aspect of the scientific category *potential* can be presented in dynamics. Figure 1 presents the scheme of the transformation of a starting point of the concept *potential* into the dynamic action.

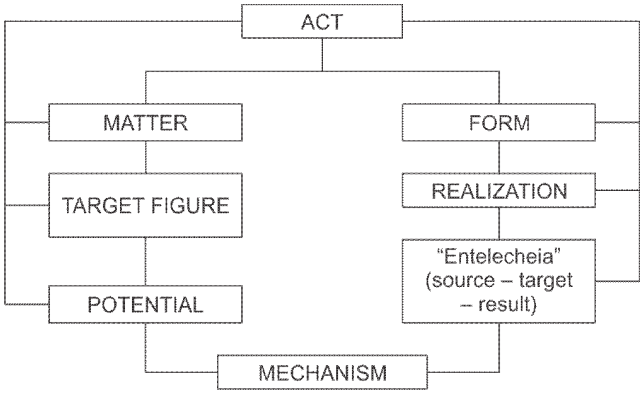

Figure 1: Transformation of a starting point of the concept *potential* into the dynamic process: a dialectic aspect

All the above allows the paper to consider the term *potential*, firstly, as a starting point (source) of the process, secondly, as a dynamic process of objectives being realized into result. In the first case, the intrinsic characteristic of the concept *potential* is determined by formal reasons of possible changes (sources, purposes). In the second case, the intrinsic characteristic of the concept *potential* is directly determined by the dynamic process (mechanism) of the transition of the opportunity into reality, objectives are realized into result (Table 1).

Table 1
Intrinsic characteristic of the scientific concept *potential*
(Shatalova et. al., 2016; Shatalova et. al., 2014; Shatalova et. al., 2015)

Definition of the concept	*Intrinsic characteristic of the concept*	*In relation to the concept of the raw materials potential*
1. Potential as a material condition, as a starting point to the process.	1. Formal reasons of possible changes as sources and purposes are determined.	1. Structure-forming elements of the raw materials potential (sources) depending on target figures of the system are determined.
2. Potential as a dynamic process to the achievement of objectives.	2. Concrete dynamic processes (mechanisms) of the transition of the opportunity into reality are determined. Objectives are realized into result.	2. Effective mechanism of management of the raw materials potential is determined.

The paper considers that these Figure 1 and Table 1 theoretically prove a system-based process approach to define the scientific term *potential*. The paper also formulates this approach as revealing of elements of an initial component of the potential, having a systemic impact on dynamic processes of the transition of the opportunity into reality.

To specify the category of the raw materials potential further, the paper analyzes the current scientific directions of its research in economic literature (Shatalova et. al., 2016; Algina & Bodnar, 2011; Algina & Bodnar, 2011; Marx, 1975-1981;Meadows et. al., 1994) (Table 2).

Table 2
Rough classification of definitions of the concept of *the raw materials potential* by the main scientific approaches of the research

Scientific approaches	*Definition of the concept of the raw materials potential*	*Researchers*
I. Resource-based approach: an ordered set of resources. The quantity of certain resources and their qualitative characteristics are estimated. In case only a set of resources is investigated, their interaction and interinfluence are not considered. In case a systemic (ordered) set of resources is investigated, there is the need to introduce certain indicators which will specify this system.	a set of available types of conjugated resources which usage allows to achieve the economic effect	Kucherova E., Kanygin Yu.
	the quantity and quality of resources which this or that economic system possesses	Lukinov I., Todoseichyuk A., Plyshchevsky B.
	a generalized aggregative charac-teristic of resources	Lychkin Yu., Abalki L., Fonotov A.
	a set of resources without consi-deration of real interrelations in the process of production	Kleiner G., Chernakov D., Timofeev R.
	set of all means, stocks, their sources and reserves	Basalayeva E., Avdeenko M., Lapin E.
	a set of resources, used in a single package, making resources to be interchangeable, and used in public production	Starovoitov M., Fomin P., Goncharuk G.
	includes labor resources or the business staff, production resources, material resources	Turovets O., Gurov O., Zabelin D., Drukin K.
	resource actual (real) and organizational production factors	Krasovsky B., Feofanov V.
II. Effective approach: the potential is considered from the point of view of the opportunity of an economic entity to involve actual resources, production factors to get a certain quantity of material values in production. The result in this case is a *platform* to estimate both the whole raw materials potential and its structure-forming elements	the economic system ability to master, process resources to meet the social needs	Dyozhkina I., Potasheva G.
	the ratio of benefit received from usage of resources which are in a certain point of the industry system to the amount of this resource (a coefficient of the return on resources)	Shevchenko D., Weizsäcker E., Lovins L.
	a set of resources operating together and possessing the ability to manufacture a certain volume of production	Svobodin V., Sosonenko A., Kharin A.
	the market value activity being investigated as an integrated indicator of business activity effectiveness	Shlychkova V., Arzamastseva A., Fadeeva E.
	the value of business assets reflected in a balance of the enterprise	Shachovskaya L., Avdeenko M.
	a macroeconomic category that is the cumulative ability of industries of the national economy	Molchanov, Gorbunov E.,
	the level of economic effectiveness that depend on a variety of resource factors	Shuklina Z., Ogner, Ragman D., Spicer L.

Scientific approaches	*Definition of the concept of the raw materials potential*	*Researchers*
	sources of increasing effectiveness – reducing labor-, material-, and capital intensity of production	Asaul A., Voinerenko M., Knyazev S., Rzaeva T.
	a set of labor, natural and material expenditures which are determined by the quantity, quality and the internal structure of each resource.	Mazur I., Shapro V., Ilyichev A.
III. Target-oriented approach – the raw materials potential is considered from the point of view of the ability of an economic entity to determine, systematize, realize and correct target figures to achieve the best possible results, using available resources.	resource opportunities of the system operation with various objectives	Dzhenester P. et. al.,.
	the system ability to achieve strategic objectives and operate steady with consideration of cumulative resources and reserves	Gunina I., Khramtsova T., Azoev G., Trykalov S. et. al.,
	to a greater extent the raw materials potential serves the purposes of tactical and not strategic management	Okorokov, Mosina V., Kruk D.
	a set of natural and economic resources participating in the achievement of an objective	Klozvog F., Efremov V., Katkalo V.
	intended use of each element of the raw materials potential in the production process	Kunz G., O' Donel S., Milner B.
	usage of the potential structural elements to achieve socio-economic objectives	Milner B., Shirenberk H., Ivanov N., Ansofor I.
	the achievement of target figures of each element in the potential structure	Dolzhansky S., Zagorkina T., Udalnykh A., Gerasnichenko I., Rashchechkina, Losev V.

Having generalized the main scientific directions in research of the economic category of the *raw materials potential* (resource-based approach, effective approach, target-oriented approach) which Table 2 presents, one should note that to a greater or lesser extent they correlate both with each other and methodical approaches in the field of management. So, the resource-based approach that is a set of available resources of the economic entity in its integration orientation concludes the purpose to choose resources, to make resources being interconnected, namely, the resource-based approach does not exist without the target-oriented approach. The effective approach both at the stages of the raw materials potential formation and its usage, assumes target figures (to choose key resources, to reveal the most optimum forms for pooling resources, and to reveal the opportunity to use resources rationally and effectively, and so on). The effective approach that is treated as the opportunity, ability of the economic entity to involve resources and production factors in the process of production mostly reflects a management aspect in research of the economic category of the *raw materials potential*. Thus, the effective approach considers both cumulative resources and all production factors which can provide the effective system operation. The paper considers that by

its intrinsic characteristic it is shown in such management approaches as system-based, process, complex, economic, adaptive, and situational (Table 3).

3. RESULTS

Thus, the system-based process elements revealed by the paper in the characteristic of the *potential*, summarized scientific directions in research of treatment of the *raw materials potential* allow the paper to define this category from the perspective of directions of system-based process research logically. As the raw materials potential is the difficult multidimensional economic category that is shown both as a structural and starting element. Table 3 presents the results of analysis of standard methodical approaches, directly or indirectly belonging to research of the category of the *raw materials potential* (Shatalova et. al., 2014; Algina & Bodnar, 2011; Algina & Bodnar, 2011; Marx, 1975-1981; Meadows et. al., 1994; Shatalova & Zhirnova, 2006).

The paper considers reasonable to investigate this category from the perspective of a public production practice as an initial moment for the development of other types of potential.

Table 3
Methodical approaches in the field of management, contacting with the effective direction of research of the category of the *raw materials potential*

Methodical approaches	*Brief description*
Economic	Defines the most economic management arrangements.
	In the effective approach it is shown in the rational structure definition of the raw materials potential (the increasing share of expenditures on the potential structure-forming elements and increasing effectiveness of their use).
Complex	Assumes accounting of all constitutive elements of management of the system – objectives, tasks, operating conditions, strategy of management and development.
	In the effective approach it is shown in quantitative, integrated estimates of effective management of the resource system capability.
Adaptive	Assumes the development (management) of the mobile control system that under changing external and internal conditions can be changed and cause, in its turn, the flexibly operational adaptability of business to the environment instability.
	In the effective approach it is shown in modification of the raw materials potential structure-forming elements, production factors influencing its formation depending on changing external and internal conditions.
Process	Assumes management of the system to be considered as a series of interconnected actions (functions) each of which is the process itself
	In the effective approach it is shown in the target figure to pool resources for optimum usage of the raw materials potential that assumes managers' functional actions on planning and management of a resource base of the economic entity and also on the realization of organizational and economic processes of effective usage of the raw materials potential.
System-based	Assumes to consider the entity as a complete system which all elements are interconnected. Each of them is indivisible (as a part of the system) introduces its characteristics into the common system. Any system has inputs and outputs.
	In the effective approach it is shown in target figures at the system input (identification of a resource base of the subject) which in the operating system can be accepted as a result (fact) and in target results at the system output (effective usage of the raw materials potential).

Methodical approaches	*Brief description*
Situational	Assumes accounting of concrete situations, conditions of the internal and external environment where the system operates. This approach reflects the business management system quality that means that it is an obligatory component of the system-based approach. In the effective approach it is shown in regrouping of a resource base, production factors having an impact on the raw materials potential to provide the system development maneuverability in the changing market environment.

Traditionally the public production practice of the economic theory is characterized as a way of the setup of social production which in its turn is defined as unity and interaction of production forces and production relations. Production as the process of social activities is classified into phases of production, distributions, exchange and consumption. A material basis of the economy is presented by productive forces. They are forces of natural social power nature, production factors and resources which can create public benefits and to provide the labor productivity growth. (Chebukina et. al., 2013; Chebykina & Bobkova, 2014, p. 185; Shatalova & Zhirnova, 2006).

In the economic theory productive power is divided into two groups. Productive power of the first order that includes primary (classical) production factors – labor power, producer's goods, business abilities (Chebykina & Bobkova, 2013; Chebykina & Bobkova, 2014, p. 542-551; Shatalova & Zhirnova, 2014). In relation to research of the raw materials potential, the paper supposes that it is reasonable to define them as resource actual conditions because production factors are, first of all, resources used in the process of production and are certain conditions to manufacture goods and to render services.

One should note here that in economic literature there is the disputable question of inclusion of a resource actual condition of the business ability into the first group of productive power. Many researchers consider that one should keep in mind not business abilities, but the synergetic effect occurring in the course of purposeful interaction of other resource conditions (Algina & Bodnar, 2011; Algina & Bodnar, 2011; Marx, 1975-1981;Meadows et. al., 1994; Shatalova & Zhirnova, 2006). The paper proves this statement, however, it does not open and concretize the process of target agreement of resource conditions. So, it is known that economic productivity is only by a third predetermined by resource actual conditions. In market conditions of business with increasing dynamism and the stream of innovations in the processes of production and specialization of labor, the management resource providing agreement of various resource conditions into the target system of effective operation is of particular importance. In this case it is reasonable to refer the management resource to a group of productive power of the second order.

Productive power of the second order includes a set of other factors (innovative, ecological, and others) which indirectly influence the labor process results. Research of the raw materials potential will characterize these factors as organizational production conditions.

The ways of production power connection of the first and second order in its entirety define (form) the raw materials potential. Effective usage (expenditure) of resources and the raw materials potential in the course of production is defined as productive consumption which result can be products or production potential. In scientific researches, defining the qualitative content of the result of productive consumption, consider production in use is considered. Production in use is a set of processes (organizational, social, technological, and others) that shows the social content of life (Shatalova et. al., 2016; Shatalova & Zhirnova,

2006). The qualitative content is shown in a new useful feature of the work results, namely in the product value.

The cost in use is a set of useful product features thanks to which it possesses the ability to satisfy any need of the individual (Shatalova et. al., 2016). In the aspect of research of this category (that is not the purpose of the paper), it is possible also to consider the multiple parties of productivity of the economic potential that can be shown, for example, in the productive capital, in the consumer capital. If the result is considered as the cost in use, the matter will be about the principle realization: products for satisfaction of the requirements. Production relations here are of importance.

Production relations traditionally characterize as a set of economic human relations, developing in the course of social production and the social yield movement from production to consumption (Chebykina & Bobkova, 2013; Chebykina & Bobkova, 2014, p. 185; Chebykina & Bobkova, 2014, p. 542-551). They are divided into business, socio-economic, techno-economic. Business relations reflect the forms of organizational communications (specialization, cooperation, concentration and centralization, organization of social production, management) accompanying human joint activity in the course of production, distributions, exchange and consumption (Chebykina & Bobkova, 2013; Chebykina & Bobkova, 2014, p. 185; Chebykina & Bobkova, 2014 Shatalova & Zhirnova, 2006). Socio-economic relations are relations between social groups, separate collectives concerning usage and the order of producers' goods. These relations are determined by the forms of ownership of producers' goods (Shatalova & Zhirnova, 2014; Shatalova et. al., 2016; Shatalova et. al., 2014; Shatalova et. al., 2015). Techno-economic relations occur between people in the course of creation and use of material and supplies. They characterize the physical content of social production – the art state, technological level, and so on.

Thus, at the stage of production in use production relations present a form of the realization of productive power. And the paper considers here that the economic potential is mostly shown as current interconnected production relations. The economic potential is, first of all, economic opportunities of the system which are determined by the development level of production power, but economically depend on the development level of production relations occurring between workers, collectives, business management personnel concerning usage of their abilities to manufacture a product. Production relations, concerning economic opportunities of the system (the economic potential) can both encourage and slow down the development of productive power (the raw materials potential) in view of the fact that they either belittle economic subjects' incentive to activity or increase their incentive.

The above methodological statement of research of the category of the raw materials potential broadly speaking considered as the result of the development of productive power of society in the economic potential structure that in its turn more depends on the development level of production relations is consistent. So, if to connect a philosophical aspect and the economic potential content from the perspective of the public production process development, the first part of the process of production reflects a material aspect of its process (initial) - productive power. The second part of the process of social production reflects production relations, namely, the dynamic (target-oriented) movement (process) of productive power (the raw materials potential) to productive consumption (the production potential) and further to production in use as to the result of the second order of the development of productive power (the raw materials potential) at better cycle of the its development, finally defining the cost in use (Figure 2).

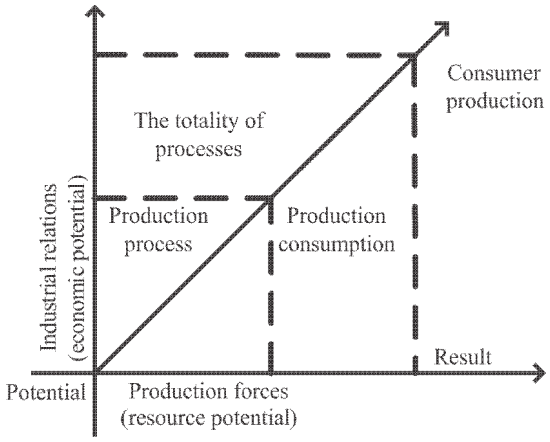

Figure 2: Economic transformations of the raw materials potential into the public production process structure

R1 – is productivity of the first order (the production potential); R2 – is productivity of the second order (the cost in use).

One should note that the paper supports the authors' points of view who consider that the raw materials potential is *a starting point*, *an impulse* to the production potential formation and thereby share these categories.

The business production potential reflects efficiency of usage of the raw materials potential, the production potential is compositionally shown in a production part of the production process which result is the output of products (Shatalova et. al., 2016). From these perspectives the production potential can be considered as the actual possibility of the economic entity to manufacture products (material benefits). This business ability depends both on the quantitative and qualitative ratio of a business resource base and organizational conditions of its operation.

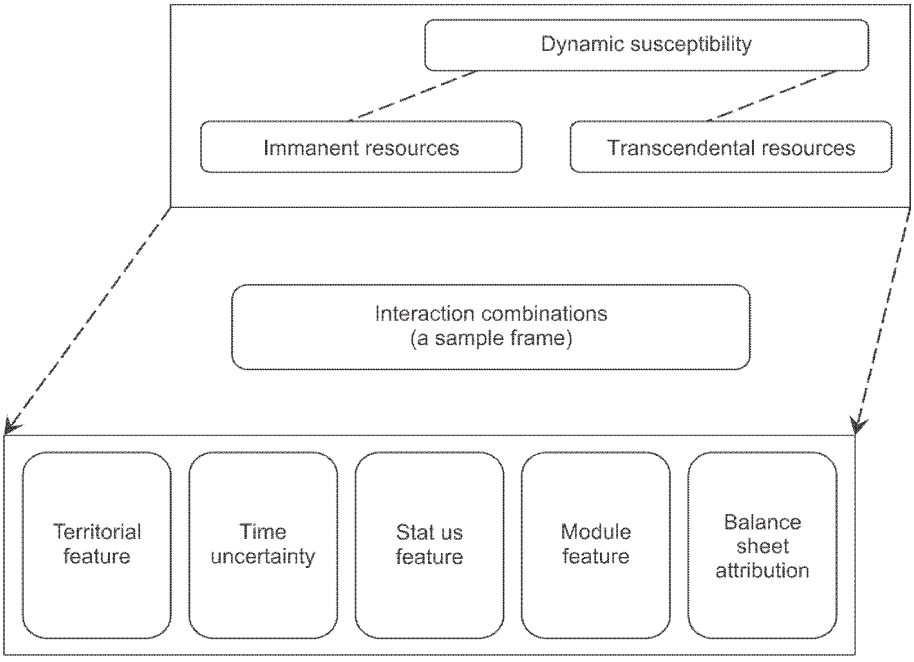

Figure 3: Dynamic susceptibility as a key feature of a sample frame of resources

Proving the dynamic susceptibility as a key feature of a sample frame of resources (Figure 3), they can be divided into immanent and transcendental resources. Key features of a sample frame of resources, namely, immanent and transcendental resources, can be reasonably considered as innovative properties of the business raw materials potential formation and operation because in their interaction they form material and organizational factors of the raw materials potential.

Immanent resources are the resources which are directly involved in the production process (labor forces, material and technical resources, land resources). An immanent property of the resources is shown in their fabrication, namely, in their objective ability to interact being interconnected and integrated within a material condition of the raw materials potential.

Transcendental resources are the resources which are indirectly involved in the production process. A transcendental property of resources is shown in the fact that, firstly, they act as subjective sources, coordinating and qualitatively organizing immanent resources. One should note here that this property functionally reflects the essence of controlling activity of an object, namely, its orientation to business effective work in the quite long term - profitability philosophy, the organizational structure formation focused on the achievement of strategic and operational objectives. Secondly, the transcendental property of the resources acts as subjective sources of successful interaction of immanent resources with the environment that provides steady business operation in the market. Transcendental resources in their subjective sample frame create organizational conditions of the raw materials potential.

4. CONCLUSION

So, this paper can concretize the intrinsic content of the concept of the *raw materials potential* as a material condition for high-quality reproduction of its basic structural elements being integrated and dynamically interacting with organizational conditions to provide steady business operation in market conditions.

References

Algina, M.V., & Bodnar, V.A. (2011). Innovative potential of the economic system and its estimation. *Modern management technologies*, *1*, 15-22.

Chebykina, M.V., & Bobkova, E.Yu. (2013). The resource balance of the factors of production in the formation of the company's capital. *Economics and entrepreneurship, 5*, 458-461.

Chebykina, M.V., & Bobkova, E.Yu. (2014). *Capitalization of resource factor in formation of enterprise economic potential.* Yelm, WA, USA: Science Book Publishing House LLC.

Chebykina. M.V., & Bobkova, E.Yu. (2014). The set of anti-recessionary measures of the energy policy of industrial enterprises in the resource-saving sphere. *In the world of scientific discoveries*, *9*(57), 542-551.

Chebukina, M.V., Shatalova, T.N., Jirnova, T.V., & Bobkova, E.Y. (2013). Controlling as a tool for implementation of the system for the enterprise raw materials potential management in its capitalized form. *World Applied Sciences Journal, 27*(4), 444-447. DOI: 10.5829/idosi.wasj.2013.27.04.13655.

Galkina, A., Bobkova, E., Burnasheva, E., Grishan, I., & Komarova, M. (2015). Statistics of productivity and effectiveness of experimental support of the educational system (for scientists and education experts). *Mediterranean journal of social sciences*, *6*(5,S3), 62.

Marx, K. (1975-1981). *Capital. Process of production of the capital.* Volume 1. Moscow: IPL.

Meadows, D.H., Meadows, D.L., & Randers, J. (1994). *Limits to Growth*: *Beyond The Limits: Global Collapse or a Sustainable Future?* London: Earthscan.

Nelyubina, E.G., Safina, L.G., Bobkova, E.Y., Korobejnikova, E.V., & Melysheva, E.P. (2016). Integrative-project model of environmental education in the training system of the students. *International journal of economics and financial issues, 6*(S1), 249-255.

Rakhman, P.A., & Bobkova, E.Yu. (2016). Reliability model of fault-tolerant data processing system with primary and backup nodes. *IOP Conference series: materials science and engineering*, *124*(1).

Shatalova, T.N. et. al., (2015). Methodological problems in determining the basic features of the sample set controlling the activities of the enterprise. *Mediterranean Journal of Social Sciences*, *6*(3,S4), p. 261.

Shatalova, T.N., Chebykina, M.V., Zhirnova, T.V., & Bobkova, E.Y. (2016). Controlling system as a key factor energy management of an industrial enterprise. *International Review of Management and Marketing, 6*(1), 7-12.

Shatalova, T.N., Chebykina, M.V., Zhirnova, T.V., & Bobkova, E.Yu. (2014). Base of instruments for managing energy resources in monitoring activity of industrial enterprises. *Advances in Environmental Biology*, *8*(7), 2372-2376.

Shatalova, T.N., & Zhirnova, T.V. (2006). Problems of cost measurement of the material factors of business production. *Regional Government Department Bulletin*, *10*, 276-281.

Shatalova, T.N. & Zhirnova, T.V. (2014). *System of industrial enterprise controlling: problems and prospects*. Yelm, WA, USA, Science Book Publishing House LLC.