Eduard A. Sosnin, Boris N. Poizner

Classification of management errors within the scope of the basic notions of Korogodin's theory of goal-oriented systems

KEYWORDS

system;
goal-oriented systems of activity;
management decision;
limited resource approach;
resolution of social contradictions;
V.I. Korogodin

Word Cloud Generated by:
<https://wordcloud.pythonanywhere.com/>

ABSTRACT

Introduction. The issue of goal-setting in management in general and in public administration, in particular, is one of the most relevant and important for management theory and practice. The purpose hereof is to study and reveal the mechanism of goal-setting in management.

Materials and methods. The article is based on Korogodin's theory of goal-oriented systems. The works on public administration, social construction and management, as well as foreign research on organizational management and business, are used herein.

Results. A simple classification of typical management errors from the standpoint of the theory of goal-oriented systems is given: those related to goals, resources, operators, and by-products.

Discussion and conclusion. The potential of using the teleonomic systems approach for the analysis of problem situations in management has been demonstrated. A strict and logical classification makes it possible to algorithmize the management decision-making process.

FOR CITATION

Sosnin, E. A., & Poizner, B. N. (2021). Classification of management errors within the scope of the basic notions of Korogodin's theory of goal-oriented systems. *Economic consultant*, 33 (1), 5-15. doi: 10.46224/ecoc.2021.1.2

INTRODUCTION

Most management errors occur either due to the influence of the mercenary motives of decision-makers or because of their misunderstanding of the goal-setting mechanism. That is, errors are mercenary and not mercenary in general. Moreover, in the first case, there is a possibility that their occurrence can be influenced and prevented judicially or administratively, while in the second case, this cannot remedy the situation. However, the administrators and managers themselves are not necessarily to blame for their incompetence. In particular, “the mechanism of goal-setting is neither considered nor revealed” even in the theory of public administration, although outside of its analysis and evaluation “it is impossible in principle to understand management and state administration as well. <...> The issue of goal-setting in management in general (in any form), and especially in public administration, is one of the most relevant and important for management theory and practice, and, unfortunately, to those of them, the methodology of which is least developed” [3, pp. 138–139]. This article is an attempt to fill this gap.

The purpose of the article is to study and reveal the mechanism of goal-setting in management (including public administration).

MATERIALS AND METHODS

The article is based on Korogodin's theory of goal-oriented systems, which is used both for theoretical description and practical management of various types of goal-oriented human activity.

The works on public administration, social construction and management, as well as foreign research on organizational management and business, are used herein.

LITERATURE REVIEW

The resulting management errors have negative consequences in various areas of the economy. Thus, based on the results of the 2008 financial crisis, Vincent Giolito makes an attempt to build a theory of management of organizational errors by the example of the banking sector [25].

Harold Bierman lists in his book ten “management errors”, i.e. actions that lead with a high degree of probability to the adoption of suboptimal operating decisions, and ultimately lead to an increase in the likelihood that the company will become less competitive [8].

In labor economics, for example, the system of professional selection, determining training needs and planning employee training, strengthening employee motivation, etc., often suffers due to an inadequate system for assessment of the employees and their retraining [1]. Kelly

Huang argues that mistakes in forecasting, arising from company managers, are subsequently associated with erroneous corporate investment decisions [9].

Gronewold et al. use the concept of “error management climate”. In organizations with a high level of this climate, errors are taken as part of daily life, useful experiences are drawn from them, and they are not repeated in the future. On the contrary, in a “climate of avoidance of errors”, their detection entails blaming those who made them [23]. The error management climate in organizations is an important factor in the development of ethical employee behavior.

Thus, errors in management require studying as an important phenomenon with growing theoretical and managerial significance. It is important to focus not only on the errors themselves but also on reducing the negative consequences of these mistakes, using them for learning and obtaining positive results.

METHODOLOGY

Any type of management (including public administration) in essence “involves the clarification of the objective laws of interaction: firstly, society and the state, secondly, the economic system with the environment in the person of society and the state and, thirdly, the formulation of these interrelationships *in terms of goals and means of their achievement*, since the category of management is closely related to the concept of goal-oriented behavior of people” (italics added. – Auth.) [22, p. 9].

Atamanchuk described the social mechanism for the formation and implementation of public administration as a chain of interrelated and consistently determined social phenomena mediated by the state: “*needs → interests → goals → decisions → actions → results*”. Here, the results are a return to the needs based on the principle of feedback – the satisfaction of the latter. Here:

- the phenomena “*needs → interests → goals*” “generalize and embody the needs of society in public administration and have a constant impact on its content, forms, and other properties”;
- the phenomena “*goals → decisions → actions*” refer to the stages of understanding the goal and the formulation of possible ways of its achievement;
- the links “*interests → goals*” objectify the subjective needs of the population, while the link “*results*” characterizes the expediency and effectiveness of management. That is, “the control system most specifically expresses itself in ‘decisions’ and ‘actions’, which, in fact, are the meaning of management” [3, p. 103–104].

This approach has much in common with the approach to management developed by the authors of this paper, based on Korogodin’s theory of goal-oriented systems [10]. According to his theory, biosystems, social associations, and anthropotechnical systems are goal-oriented, or teleonomic (from ancient Greek *τέλος* – goal, accomplishment + *νομος* – law). Their activity is inextricably linked with the activity of living organisms: in all cases, there is a conscious or

unconscious pursuit of some goal [19]. Korogodin proposed a symbolic formula describing the elements and structure (i.e. the system) of goal-oriented action [10]:

$$[R, \cdot S] \mid \overset{Q}{p > p} \rightarrow [Z, \cdot W_1, \cdot W_2, \dots], (*)$$

where S – the present situation containing an obstacle to achieving a goal Z; Q – operators (from Latin *operator* – worker) of reaching the goal (methods, schemes, mechanisms, machines, algorithms, rescripts, procedures, etc.); R – the required resources; P – the probability of reaching the goal event; p – the probability of accidentally reaching the goal event Z; W – by-products of the operator's work. Goal-oriented human activity, as a rule, increases (to a greater or lesser extent) the probability P of transition to the event Z, which is needed by the person. In general, interference in the natural course of events of a certain goal-setting subject can always be interpreted as a governing influence.

Consider the goal-oriented management activity. If before the manager's intervention in a certain process, the probability is $p = 0$, and after the intervention $p > 0$, then this refers to *novation*, the creation of a new management mechanism, management effect. This is the basic management technique (operator). After its establishment (i.e., the first operator Q is created), the probability of achieving the goal becomes greater than zero $p = P > 0$. Then applied research begins, aimed at obtaining such novations that in specific target links $((R, S) \rightarrow (Z, W))$ will increase the probability of reaching the goal to a maximum ($P \gg p$, and ideally $P \rightarrow 1$). Only in this case, novation will become *innovation*. The resulting operators are management methods, procedures, and programs for which the conditions for the reliable achievement of goals and the conditions in which this occurs are determined. This also includes the tasks associated with the widespread use of the created management methods.

The expression (*) symbolically describes a system of interconnected elements that ensure the achievement of the goal, which corresponds to the formulation of the system in GOST R ISO IEC 15288-2005: A system is a set of interacting elements organized to achieve one or more set goals Z [5]. Removing any of the items listed in (*) is likely to drastically reduce P, i.e. will lead to the loss of the system's ability to achieve the goal.

Ignorance of the structure of goal-oriented action and its elements (*), i.e. ignorance of the goal-setting mechanism always leads to typical management errors. Let us consider them in more detail using the (*) notation.

RESULTS

Let us classify management errors within the scope of the basic notions of Korogodin's theory of goal-oriented systems.

1. Management errors associated with objectives Z

1.1. *The incorrect setting of the Z goal* is caused by either malice (when one goal is declared, although the system (*) is created for or serves a completely different purpose) or laziness. In all these cases, the criterion for the correctness of the goal is its compliance with the aspirations

of people belonging to this or that social association to which the managerial decision applies. For example, the decision to purchase licenses at an enterprise is primarily beneficial for the person who will execute the transaction and even receive bonuses from the licensor (gifts, a percentage of the transaction, paid travel costs in the case of a foreign license), but not for the team of engineers of the enterprise, which will be left without work as a result.

In many organizations, the skill of setting goals is still underdeveloped as a result of the residual influence of the planned economy, which was inherent in the Soviet period. At that time, there was such a structure as the State Planning Committee and such a mechanism as five-year planning of the country's life. Self-setting goals in these conditions were often unnecessary. On the other hand, in bureaucratic structures with a worldwide distribution, the skill of setting goals is also unclaimed, since the main useful function of the bureaucracy is the accurate transfer of orders from the upper echelons of power to the lower ones and control over their execution. It is clear that the bureaucracy is organically incapable of ensuring the fulfillment of any of the tasks of public administration listed in [3, p. 59]:

- rational and efficient use of the available resource, production, labor, and intellectual potential of the country;
- activation of labor, directly related to the interests of a person and really influencing the level and quality of satisfaction of human needs;
- changes in conditions, productivity, and social performance of labor, and as a consequence – the enthusiasm for people and creation of factors for the growth of their well-being.

To overcome this discord, it is required to introduce several feedbacks between the population and the authors of certain laws and regulations at different levels at least. Moreover, the annual teleconferences between the President of the Russian Federation and the people of Russia are clearly insufficient for this purpose.

Strictly speaking, the choice of the target Z must be made after a comprehensive audit of the available resources R , analysis of the situation S , and assessment of the consequences of the management decision. A recent example of the consequences of a voluntaristic management decision is the massacre in the American city of Charlottesville (August 13, 2017). The city authorities decided to remove the statue of General Lee, who commanded the southern army in the American Civil War one and a half hundred years ago from the central square. The statue was erected in 1924 by the Confederates in memory of the losing side in the civil war. Local managers had not audited the situation, had not estimated the number of dissatisfied with this decision (for various reasons) prior to deciding to demolish the statue. When the demolition caused unrest, the mayor of the city did not think of anything better than to shift responsibility for the clashes to the President of the United States.

Consider another case. The war of the Russian Federation in Syria (2015–2020) seems to be an erroneous act if one proceeds only from the calculation of the resources and the operators that it requires. However, the goal of the military campaign is strictly linked to the target link $(R, S) \rightarrow (W)$: it is better to suppress terrorists in a foreign territory than to wage a war at home. The population can understand this, therefore the share of protests against this campaign is relatively small.

1.2. Reduction of the development goals to profit. There is a widespread substitution of concepts, which in the most negative way affects the development of any social associations. It is believed that all objectives of the Z organization (from small forms to the state) can be reduced to maximizing revenue. This is a fatal management error! The main goal of the cinema is to attract the attention of the viewer. Only if it succeeds, then one of the private goals is achieved – revenue growth. Even the goal of banks (at the time of their founding, not current banking goal-oriented systems) was primarily to make it easier for people to make payments. It is especially dangerous to make such an error, using not indicators of growth in the well-being of citizens (including the index of happiness, which includes not only the incomes of the population), but minimizing inflation, etc. Money itself is a fulcrum, one of the Q operators invented by people long ago. Moreover, it is unacceptable to confuse Q with the target Z.

2. Management errors associated with R resources

2.1. Discretionary interpretation of the “resource” concept. Oddly enough, quite often the manager is simply unable to define a resource. This leads, first, to the fact that a resource is understood to mean only finance, or they use the wording “human resource”, forgetting about its cannibalistic origin. If one turns to the explanatory dictionary, then a resource* is “stocks, sources of something” or “a means to which one turns when necessary” [12, p. 553]. A resource can be matter, energy (including field energy), and even emptiness (see, for example, [16]), but not people! Of course, if one treats them in a way fascists treated concentration camp prisoners and considers them as a source of raw materials for the production of soap and bone meal, then this approach is understandable. However, each person is not only a source of energy but also a unique set of personal qualities and skills, which – according to (*) – are operators Q. Moreover, it is often overlooked that in a number of target links, a person is also a by-product W (perceived as disadvantages of the way to achieve this or that goal Z). As noted by Genisaretsky, “a person has his own depth, there is a heart, from where thoughts (motives) originate that are significantly different from external goals and reasons” [7] Therefore, the interpretation of a person solely as a resource greatly simplifies the vision of a managerial task. Still, after all, the manager naively does not notice the inherent shortcomings of W and at the same time denies them possession of any unique skills Q. Hence, conflicts between employees and employers (who consider employees as “raw materials” or even “consumables”).

2.2. Misunderstanding of the diversity of resources. Sadly, but managers often do not understand how diverse resources R can be. For example, in [4], resources are classified:

- according to their compliance with the achievement of the goal Z (useful, neutral, and harmful);
- cost (free, affordable, expensive, unaffordable);
- in relation to other resources (cooperative, interchangeable, antagonistic);
- according to the conditions of their reproduction (renewable and depleting);
- by their presence (potential and real);
- by their number (unlimited, sufficient, and scarce);

* French *ressource* – supplement, *resourdre* – emerge < Latin *resurgere* – step up, unbend.

- by quality ("raw", semi-finished, and ready to use).

It means that it is not enough to get some kind of resource for constructing a management decision. The R resource must be such that it at least:

- on the one hand, increases the probability P of achieving the goal Z in a goal-oriented system of activity (GOSA) (*);
- on the other hand, does not increase the amount of W.

An affordable and renewable resource does not always meet this, but the manager chooses it, by sacrificing W. Thus, if a taxi fleet completely switches to serving customers exclusively via the Internet (R), then inevitably it loses customers who do not have constant access to the network.

2.3. Austerity of resources. A typical error of modern managers responsible for the management of education, medicine, and other socially significant GOSA is the reduction of resources R allocated for the operation of the GOSA. It is considered in terms of fashionable "cost optimization", although the main thing is not taken into account: if at least one element is removed from the system (*) (in this example, resource R), then it will fall apart. It comes to the point of absurdity: in the drug treatment clinic of the Moscow Region city of Fryazino, under the pretext of saving finance R, the owner ("manager") has cut the rates of nurses, leaving psychiatrists face to face with the violent patients. Moreover, the maintenance staff was fired. Not surprisingly, the doctor soon quit, leaving the owner to reap the benefits of his managerial voluntarism on his own. What should the patients do?

3. Management errors associated with operators Q

3.1. Application of the operator Q without assessing the degree of its suitability in the target link of the management task. Quite often this or that system of labor organization is introduced into everyday life only because it is considered "progressive", "modern", and "fashionable". For example, at one time the need to implement the Q Six Sigma methodology in many enterprises was motivated by the "benefits from its use" by General Electric. However, the fact remained: this company was successful even before the introduction of this technique. Six Sigma does not explain this circumstance in any way [24]. What can be said about the application of this operator Q in other target links?

Similarly, following fashion, one can try to implement Toyota production system standards, such as Total Productive Maintenance (TIM), in one's own enterprise. This is a set of procedures and rules for the behavior of a worker at a car factory (i.e. a set of operators of goal-oriented activity Q), with the help of which the Japanese managed to raise production efficiency. In particular, one of the TIM operators aims to ensure that the worker independently maintains the machine on which he works (self-service operator): repairs and monitors its performance. However, is it true that if it worked in the target link of the Japanese vehicle manufacturing center, it will work in Russia too? The Ural automobile plant was lucky: the introduction of the TIM operator made it possible to reduce the average changeover time of machine tools from 32 to 5 minutes.

However, honest consultants on the implementation of TIM also note the speed of its establishment in Russia in comparison with the implementation at German enterprises. In Germany, the implementation process takes years and decades, since the German worker cannot accept the fact that he himself has to look after his machine instead of a special cleaner. This means that when introducing new Q operators, one still needs to leave paths for the implementation of spare goal-oriented activity statements – in case Q in the target link does not increase the probability P of achieving the goal or even increases the yield of by-products.

3.2. Lack of understanding of the situational nature of the operator. In a normal scenario, the operator Q enters the use of the GOSA, having proven its ability to increase P and (or) save R, and (or) reduce W. However, it is implemented in a specific time period, which corresponds to a specific situation S. As soon as the situation changes, the operator can become ineffective (according to the specified criteria). Nevertheless, for various reasons (for more details, see [17]), this operator is not changed to another. A classic example is the collapse of the GOSA “moving photography” of Edison. As the inventor of the Kinetoscope Q operator, Edison made many management decisions to bring the novelty into series. Namely:

- received a patent for the device (July 31, 1891);
- founded the joint-stock company Kinetoscope Company (1892);
- created a special studio film production studio Black Maria (1894);
- opened the world's first kinetoscopic theater Kinetoscope Parlor (April 14, 1894), and by the end of the century – 11 more theaters.

The GOSA became more and more complicated until it reached its limit, which was set by the Kinetoscope itself:

1) The cost of tickets was very high at that time (for 25 cents one could buy a set of simple clothes).

2) The design of the apparatus was inconvenient for the consumer. The session consisted of a person buying a ticket and taking a seat at one of the machines. Viewing was individual: during the session, it was necessary to stand, bending over a box, in the window of which a running film strip glued into a ring showed the show. Stunted people, children, and people with big bellies experienced serious inconvenience to look into the world of the film.

3) Each new tape was produced with a new apparatus. Only later was the procedure for replacing films invented, but it was complicated and required qualified performers, which made the system flexible. Let us imagine that no one is interested in showing an old boxing match, but the entire Kinetoscope with its recording continues to be preserved in the theater.

These are all by-products W of kinetoscopic theaters. Simultaneously with this GOSA in America, the GOSA of mass cinema appeared (in which the operator of the Lumiere brothers was used). That is, the situation S changed! However, Edison insisted that every film should entertain one viewer. Edison also did not understand that short films for several minutes (convenient if one watched them bent over, which required much patience) were the ceiling

of the system. In addition, the goal of making money – a subordinate one in relation to the GOSA of cinema – was perceived by Edison as the main one. Edison did not want to admit the fact that only by shooting more and more new films, one could keep the viewer's interest. However, it was a golden time for analyzing and making changes to the goals Z and operators Q of the GOSA of cinema ... By the way, in this example, Edison demonstrated his inability to notice and respond to W, which is equally important for providing high-quality management decisions designed to maintain and develop the GOSA (see item 4).

4. Control errors associated with W by-products

4.1. *Failure to take into account the by-products W and the rate of their accumulation* is a very common mistake in business planning. So, when designing the Mezheninovskaya poultry farm (Tomsk Region, Russian Federation), the indicators of waste W of the poultry life were underestimated in order to make the project attractive. It was assumed that the poultry manure W would be sold to the population as fertilizer (which is already good since it means: the waste of one system will become a resource for another GOSA, i.e. $W \rightarrow R$). Alas, the needs of the population turned out to be less than expected, and fines for environmental pollution were higher.

An example of taking W into account in management decisions is the so-called strategy of effective violation. It consists in the fact that before stealing one or another patent, i.e. violating the right of its use by the patent owner, the thief company at the first stage calculates the effectiveness of the introduction of the stolen. For example, US law does not consider an act of theft of an industrial property object criminally punishable, since violators can only be punished financially. Accordingly, when the economic benefit from theft is much higher than the deductions that may follow (if the fact of theft is revealed and brought to court), then the company carries it out, i.e. $W \ll R$. Therefore, today the courts in the West are inundated with cases of patent infringement: in 2010, a Texas court (USA) found the world-famous company “with a human face” Apple guilty of the violation of three patents owned by Mirror Worlds. The amount of damage was estimated by the court at \$208.5 million. Apple admitted the violation of only one patent and asked to reduce the amount of the fine by three times (see details in [21]).

4.2. *Misunderstanding of the differences in the origin of the by-products W.* Depending on how the problem (Z) is formulated, the by-products can be:

- obsolete operators Q;
- waste W;
- resources that have an undefined status, when it is not clear whether they are needed by the GOSA or not, whether they are harmful for the deployment of the process or harmless.

As a result, the fierce waste management (and associated management decisions) overlooks other types of by-products. Therefore, on paper, in the report on the fight against W, everything is in order, but in reality, it is not.

DISCUSSION AND CONCLUSION

The above list of management errors is obviously incomplete. It only demonstrates the potential of using the teleonomic systems approach to analyze problem situations in management. A strict and logical classification would allow algorithmizing the process of making management decisions. The authors are confident in its usefulness since they rely on rich historical material for resolving social contradictions [11; 15; 16] and the applicability of the described methodology to solving not only social [3; 13] but also scientific and technical problems: in the management of research and development work [17], in solving scientific, technical, and social problems [20], in the management of the results of intellectual activity [21].

REFERENCES

1. Delic, A., & Cebic, M. (2011). Sources of Errors in the Evaluation of Performance Employees in The Sector of Public Administration Reform in Bosnia and Herzegovina. *Economic Review: Journal of Economics and Business*, 9(1), 79–102.
2. Anikin, V.M., Sosnin, E.A., & Poizner, B.N. (2015). Unification of Universities from the Standpoint of the Theory of Goal-Oriented Systems of Activity. *University Management: Practice and Analysis*, 6(100), 41–56.
3. Atamanchuk, G.V. (2010). *Public Administration Theory: Textbook*. Moscow: Omega L.
4. Dahlquist, E. (Ed.). (2012). *Biomass as Energy Source: Resources, Systems and Applications* (Sustainable Energy Developments, Volume 3). CRC Press, Taylor & Francis Group.
5. *GOST R ISO IEC 15288-2005. System Engineering. Systems Life Cycle Processes*. (2005).
6. Hasanov, A.I., Gokhman, B.M., Efimochkin, A.P., Kokin, S.M., & Soplnik, A.G. (1995). *Birth of an Invention (Strategy and Tactics for Solving Inventive Problems)*. Moscow: Interpraks.
7. Genisaretsky, O.V. (2002). Russian Statehood in Civil and Legal and Corporate Perspective. In *Powers, Functions and Subjects of Reference in the Strategic Perspective of Statehood Development. Report of the Center for Strategic Studies of the Volga Federal District* (pp. 160–161). Nizhny Novgorod – Moscow: Tretiy Rim, Center for Contemporary Art of the Volga Federal District.
8. Bierman Jr., H. (2011). *Improving Competitiveness of Industry* (pp. 89–95). World Scientific. Retrieved February 20, 2021, from <https://doi.org/10.1142/8054>
9. Huang, K. (2020). Management Forecast Errors and Corporate Investment Efficiency. *Journal of Contemporary Accounting and Economics*, 16(3). Retrieved February 20, 2021, from <https://doi.org/10.1016/j.jcae.2020.100208>.
10. Korogodin, V.I. (1991). *Information and the Phenomenon of Life*. Pushchino: Pushchino Scientific Center of the Russian Academy of Sciences.
11. Korogodin, V.I., Sosnin, E.A., & Poizner, B.N. (2000). *Social Construction Workbook (Interdisciplinary Project)*. Part 1. Tomsk: Publishing house of Vol. University.
12. Ozhegov, S.I. (1988). *Dictionary of the Russian Language: About 57,000 Words*. Moscow: Russkii yazyk.
13. Poizner, B.N., & Sosnin, E.A. (2016). Frame of Abortive Modernization: Interpretation Experience. In *Actual Problems of the Humanities and Economic Sciences: Collection of Materials of the XVI Interregional Scientific and Practical Conference (February 26, 2016, Kirov)* (pp. 10–17). Kirov: Vesti.

14. Sosnin, E.A., & Poizner, B.N. (2000). *Fundamentals of Social Informatics: Pilot Course of Lectures*. Tomsk: Publishing house of Vol. University.
15. Sosnin, E.A., & Poizner, B.N. (2001). *Workbook on Social Construction (Interdisciplinary Project)*. Part 2. Tomsk: Publishing House of Vol. University.
16. Sosnin, E.A., & Poizner, B.N. (2004). *University as a Social Invention: Birth, Evolution, Sustainability*. Tomsk: Publishing House of the Tomsk State University.
17. Sosnin, E.A. (2012). *Regularities and Methods of R&D Management: Textbook*. Manual. Tomsk: STT.
18. Sosnin, E.A., Shuvalov, A.V., & Poizner, B.N. (2013). *Leader and Life Cycle Management of The System: The Scale of Creativity, Examples, Pathography*. Tomsk: Publishing House of Vol. University.
19. Sosnin, E.A. (2015). Hardy-Weinberg Law in Social Management. *State Councilor*, 3, 31–35.
20. Sosnin, E.A. (2016). *Methods for Solving Scientific, Technical and Social Problems: Textbook*. Tomsk: Publishing House of Tomsk State University.
21. Sosnin, E.A., & Kaner, V.F. (2019). *Patenting: Textbook and Workshop for Undergraduate, Specialist and Graduate Programs*. Moscow: Urait.
22. Shamkhalov, F. (2002). *Theory of Public Administration*. Moscow: Ekonomika.
23. Gronewold, U., Gold, A., & Salterio, S. (2013). Reporting Self-Made Errors: The Impact of Organizational Error-Management Climate and Error. *Journal of Business Ethics*, 117(1), 189–208.
24. Vermeulen, F. (2012). *Business at Gunpoint: The Bare Truth about What Is Really Happening in The World of Business*. Moscow: Pretekst.
25. Giolito, V. (2015). *Three Theoretical Lenses on a Bank Collapse*. Working Papers CEB, 15-033.

INFORMATION ABOUT THE AUTHORS

Eduard A. Sosnin (Russian Federation, Tomsk) – Doctor in Physics and Mathematics, Professor of Innovation Management Faculty. Tomsk State University. E-mail: badik@loi.hcei.tsc.ru. Scopus ID: 7003325632. ResearcherID: L-8069-2019

Boris N. Poizner (Russian Federation, Tomsk) – Ph.D. in Physics and Mathematics, Professor of Radiophysical Faculty. Tomsk State University. E-mail: pznr@mail.tsu.ru. Scopus ID: 6602649710

Available: <https://statecounsellor.wordpress.com/2021/02/21/sosnin/>

Received: Jan 6, 2021 | **Accepted:** Feb 2, 2021 | **Published:** Mar 1, 2021

Editor: Viktor Tsvetkov, Moscow State Technical University of Radioengineering, Electronics and Automation, RUSSIA.

Copyright: © 2021 Sosnin, E., Poizner, B. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Competing interests: The authors have declared that no competing interests exist.