

Forecast Evaluation of the Social and Political Tensions Potential for the Proactive Countermeasures against Extremism

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Abstract

In case of high-level social and political instability in the region, there is the need for taking countermeasures even when only weak signals of tension escalation have been detected. Under these circumstances, the implementation of the proactive countermeasures against extremism is methodologically justified. This allows reducing the degree of social and political tensions for a long term, preventing the formation of tension centres and its support and initialization environments. It has been shown, that the scientific basis for the proactive countermeasures against extremism is the projective methods of generating the initial data, the intellectually, psychologically relevant methods of initial data interpretation, the methods of group theoretical analysis and multiagent modelling, determining the situation development forecasting way. The proposed structure of the intelligent module, which consists of the methods and models of the social and political tension forecasting evaluation, being the scientific basis for the proactive countermeasures against extremism, has been described. Its core includes a new procedure of monitoring the group political attitudes by measuring its affective and cognitive components, the extended psychosemantic phenomenological model (based on more complete integration of the social psychology approaches, the theory of measuring the social processes, the catastrophe theory, etc.), as well as a fundamentally new integrated simulation model of the group and individual response based on the multiagent modelling paradigm. The results of the procedure testing in 2011-2013 while studying the group political attitudes among the students of Rostov-on-Don, Vladikavkaz and Grozny are noted. The opportunities for the development and applicability of the procedure for the direct application in the actual practice of the regional authorities to reduce the degree of the social tensions (the people's protest) and neutralization of the current conflict factors in these territorial communities, namely, the implementation of the proactive countermeasures against extremism.

Keywords: social and political tensions, proactive countermeasures, extremism, semantic differential technique, modeling

1. Introduction

The social and political tensions in the Russian regions remain high and become chronic. The tension centres, linked together by a variety of relations are established (Zubarevich, 2007). Moreover, loss of the external evidence of such threats could be observed, what does not make them less dangerous for the regional and national security. In case of high-level instability in the region, when the rapid situation development is possible, there is the need for taking countermeasures even when only weak signals of tension escalation have been detected. Under these circumstances, taking the proactive countermeasures against extremism, which allow reducing the degree of the social and political tensions for a long term, preventing the formation of tension centres and its support and initialization environments, is methodologically justified. This management type referred to as "proactive" has become a frequent practice in the organizational and business systems (Shneider & Kazarinov, 2011). The "Preventing Violent Extremism Programme" has been adopted in the UK in order to set a limit to attempts of spreading the extremist ideas, it is based on the "four" P "principle - prevention, prosecution, patronage and preparation" (UK Preventing Violent Extremism Programme, 2008).

However, applicability of the "prevention" principle is restricted by some problem factors. Thus, the role and place of the proactive countermeasures among other means of fight against extremism has no rigorous definition. Identification and evaluation of the social and political tensions potential are impeded because of the

fundamental problematicity of obtaining the reliable data by traditional opinion polls. Next, in the context of informational aggression the state and dynamics of the social relations are imposed to hidden and accelerated changes, which recording (measuring) is also technology-impeded in the process time. Finally, there are no generally accepted (universally recognized) methods and tools for generating forecast evaluation under these circumstances. Therefore, the issue of the methodological support for obtaining the forecast evaluation of the social and political tension potential is so urgent for implementing the proactive countermeasures against extremism.

Nowadays the issues of the social and political tension forecasting evaluation attract the attention of general experts in various fields of the scientific knowledge (Rozin & Svechkarev, 2012). Detecting the potential extremism threats in the early stages is one of the important trends in the social and political tension studies, and at the same time it is used for actual optimization of the main activity fields of the modern society. In particular, at the beginning of the XXI century in Russia some programs (the federal, sectoral and regional programs/development concepts; standardising and normalizing the activity of various social structures, assessing the efficiency of the current financial investments), based on various forecast models have been launched (Cherdantseva & Barysheva, 2007). However, analysing the data of the social and political programs and projects often exposes their inadequate scientific and methodological rationale, such as in the field of analysing the main factors and the "centres" of the social and political tensions accumulation. In particular, uncertainty and unreliability of the data on the state of the system and external disturbances could not be overcome, especially in the context of informational aggression, when the state and dynamics of the social relations are imposed to hidden and accelerated changes. In this context the generated forecasts of the situation development are divorced from reality, and the offered solutions are not relevant to the emerging threats.

Studying the results obtained in the foreign research centres shows, that the researches on modelling and forecasting the social and political processes are high-profile in nature and are primarily intended to solve various geopolitical issues, as well as to prepare making global political strategic and operational managerial decisions (Haslam & Turner, 1992; Helbing & Baliotti, 2010). While bearing in mind the results of the Russian scientists' works in this research area, it should be stated, that nowadays our foreign colleagues have been well on their way, especially in the field of the software development and have already offered some publicly available products (Epstein, 2002; Collier, 2003). In fact, the latest analysis and process forecasting methods, which are implemented within the social interactions (similar to the "in human terrain" term) and allow significantly extending the area of real phenomena, processes, systems, coming under appropriate forecast, are developed. One of the basic elements of the technology is computer modelling, which ensures "forecast generation". Improving the computer and telecommunication facilities results in the further development of the simulation modelling methods, including multiagent modelling, without which the social and political processes and phenomena could not be studied (Epstein, 2002; Collier, 2003; Lustick, 2002).

2. A Method of the Proactive Countermeasures against Extremism

Let's consider the concept of proactivity and the proactive management principles relating to the regional and national security systems as the conceptual elements, which describe the proactive countermeasures against extremism. As it has been already said, the "proactivity" concept is widely used in various subject fields. The specific context of use allows appropriate term interpretation. According to (Newstrom & Davis, 1989), the best known definition of the organizational behaviour management treats proactivity as predicting events, initiating changes, a commitment to "have a lock on" the destiny of the organization. In relation to the current task we will understand proactivity as predicting the responses to the events caused by the extremist activities, and initiating the changes, which prevent predictable responses.

Developing a stable social and political situation in the region is carried out by maintaining dynamic stability. It is primarily implemented by suppressing the observed deviations associated with various disturbances (impacts), external to the process, i.e. which are not caused directly by the course or the procedure of implementing the social and political process. Despite the continuous actions, it is possible to maintain the sustainable balance of the social and political system using such regulators. In the control systems this principle is called the principle of negative feedback or the principle of management by exception (Knorring, 2009). However, it should be noted, that the external disturbance has already caused the social and political system response, i.e. deviation from the stable state. Operation of the system stabilization loop (feedback loop) requires that this deviation should be sufficient for being detected by the control system, i.e. it should be identified during the measurement process. Even allowing the occurrence of deviations is often undesirable or unacceptable. While implementing such method of the situation management the impacts of severe disturbances, such as terrorist attacks or large-scale actions of extremists, are destructive, when the situation is extremely destabilized, and preventing the

occurrence of negative effects is unavoidable. Some slight, but rapidly following one another impacts, for example extreme provocations, which disturb the system balance, impeding its stable operation until it does not reach the balance again, have the similar influence. In such case various conflicts, which affect the regional and national security, often arise. But the system will respond to the negative effects only, i.e. to the result of the social and political system response to the extremist influence.

In this case, the principle, known as the principle of disturbance control in the management theory (Anfilatov et al., 2003), but within this work - the principle of the proactive countermeasures against extremism, is more effective and efficient. The main advantage of the disturbance control is that the response to the disturbing influence could be and should be eliminated, what prevents the occurrence of the system deviation from the stable state. In most cases, the problems could be identified in advance, what allows planning and taking measures to eliminate them. I.e. as predicting the responses to the events caused by the extremist activities, and initiating the changes, which prevent predictable responses. However, generating the impacts, which prevent the predictable responses, requires the exact knowledge of the response characteristics of the social and political system to the disturbances caused by the extremist activity. This exact knowledge involves the evaluation of the current state of the system, the evaluation (forecast) of disturbance, the forecast of the system response to disturbance and the countermeasures against disturbance scenario. The basis for accumulating this kind of knowledge is the forecast models. As a result of model analysing the data on measuring the current state of the social and political process the forecast for the situation development and the countermeasures against external disturbance scenario are represented.

Therefore, the condition for implementing the proactive countermeasures against extremism is the use of the intelligent model methodologies, which ensure prediction of the controlled system behaviour based on analysing and modelling the situation development subject to the the initial, accumulated and interpreted data. The achieved by this solution possibility to shift from the principle of response to extremism activity to the proactive countermeasures, i.e. to prediction of its activity, should be emphasized. In the context of this issue the key specific task has been solved within the presented work, i.e. the forecast intelligent module has been created, in this case, from the methods and models of the social and political tension forecasting evaluation.

3. The Results of Creating a Forecast Intelligent Module

In this case, the subject of study is the complex and insufficiently stated issues of implementing the proactive countermeasures against extremism, i.e. the issues of high uncertainty of the initial, accumulated and interpreted data, the multiplicity and diversity of hardly comparable factors, multiscale and non-linear studied processes, the ambiguity of the situation forecast for decision making (Rozin & Svehkarev, 2012). While studying and modelling the social systems, the issues of high uncertainty of the initial, accumulated and interpreted data always occur. Any further procedure of modelling and forecasting could be ineffective, if the data are either incomplete or not clearly defined, and finally, if the data structure has an unambiguous definition (scaling). The methods and processes of obtaining the reliable data by traditional opinion polls exacerbate problematicity (Dobrenkov & Kravchenko, 2006; Miller, 1983). These issues are suggested to be settled within the consistent and emergent use of the methods of generating the initial data, the intellectually, psychologically relevant methods of the initial data interpretation. The proposed approach is the evolution of the methods previously developed and tested by the authors. In particular, the methods of obtaining the initial data through questioning, conducted using the semantic differential technique (Osgood, 1952); the methods of the initial data interpretation, including those based on the adequate perception model (Coombs' generalized perception theory or the model of two ideal points); the methods of processing on the non-linear approximation, based on the concept of typicality and structural stability, the catastrophe theory approaches and the results of the group theoretical analysis (Poston & Stewart, 1978). All these methods are included in the developed procedure of psychosemantic phenomenological modelling the subjective perception of the social processes (Moshchenko, 2010).

Within the procedure, on the first approximation it is assumed, that from a practical point of view the most important for a researcher is the behavioural aspect, determining the social response to the study object. The behavioural aspect depends on the cognitive (to a lesser extent) and affective (to a much greater extent) component. Thus, on the first approximation it is assumed, that the behavioural aspects of the group attitude depend on the emotional aspect of this attitude. In this case, the semantic differential technique, developed by the authors as a part of the current task, is proposed to be used for the initial data collection (Osgood, 1952). Conducting statistical processing of the obtained material and the comparative analysis of the processing data are further provided. We obtain the profiles of the group emotional perception of the ideal negative (causing a complete denial of the respondents) and positive (completely acceptable) political systems, as well as the current system. In addition, the relationship between the primary emotional characteristics and independent factors, as

well as the emotional profiles of the above mentioned political systems in the space of these factors, and the load matrix (the matrix of shift from primary indicators to independent factors) is given. It should be noted, that the importance of the factor is determined by the rate of the individual contribution to the result variance. The load matrix allows converting the primary indicators into the space of factors and obtaining the semantic patterns of the respondent's attitude to the political systems, but in the space of the above mentioned independent factors. In addition, the comparative analysis of changing the factors in the perception of various systems and the preliminary evaluation of the political tensions are carried out (by relative distance in the factor space of the point complying with the type of the current system, from the similar points for the perfect systems).

Then, Coombs' ideal point model (Coombs et al., 1954) and the methods of the catastrophe theory are suggested to use while developing the models of the psychosemantic analysis. The developed mathematical framework allows adequately processing the measurement results by the model of two ideal points and not only to interpret the measurement results, but also to make the dynamic forecast by these results.

The potential and the level of the social and political tension evaluation is suggested to be based on the methods of the catastrophe theory. The semantic differential technique determines the factor importance. However, these are not the same factors, which are included in the political tension potential. The case is that, within the catastrophe theory the typical potential is given accurate to diffeomorphism by the control parameters (smooth non-linear non-singular change of variables). In this case, the entire control parameter space could be divided into the separate spaces by the destabilization hypersurfaces of various stationary states. Within each space different types of solving the state equation will be implemented. In the future the analysis allows extending the solutions of the state equation near the determined point and answering the question on, how the level of the political tensions will be changed in case of slightly varying external conditions, smoothly or abruptly.

4. Discussion of the Forecast Module Properties

In the proposed procedure Coombs' perception theory has been further appropriately developed. In particular, the mathematical framework, which allows adequately processing the measurement results by the model of two ideal points, has been developed. On the conventional linear approximation the studied actor is considered to be dependent on half-difference of the relative distances to both ideal points. As it is easily seen, if both relative distances are great, it means, that the values of the examined actor are far from the values, corresponding to the ideal points. On the other hand, if the difference between these relative distances is big by the module, then on the linear approximation it will be concluded, that an actor's value corresponds to one of the ideal points. What proves the inadequacy of the linear approximation in this case. The proposed approach is completely free from this weakness. It could be said, that the procedure provides the mathematical framework, which allows processing the measurement results by the model of two ideal points, and completely solves the problem of generalizing Coombs' theory in this case. As it has been already said, such solution makes it possible not only to interpret the measurement results, but also to carry out the dynamic forecast by these results.

The theoretical analysis of the obtained results has shown an interesting twist. In all the cases the dependence of the level of the emotional perception of the political system from the identified latent factors after the appropriate change of coordinates has been reduced to a canonical form, which is known as the cusp catastrophe within the catastrophe theory. On the other hand, the catastrophe theory shows, that upon the growth of the considered factor the more complex dependence, known as the butterfly catastrophe, will be typical. In particular typical sections the latter is reduced to the cusp catastrophe, i.e. the cusp catastrophe should typically occur. Conversely, the higher catastrophes, the swallow and butterfly ones should also typically occur.

Using this mathematical framework not only the potential and the level of the social and political tension evaluation could be defined, but also the comparative analysis for various studied regions could be conducted, the surface descriptions of the stationary states could be made, forecast evaluation of the quasi-static behaviour dynamics at the perception level in case of varying the external conditions could be obtained.

The described procedure was tested in 2011-2013 while studying the group political attitudes among the students of Rostov-on-Don, Vladikavkaz and Grozny. The procedure ensured identification of the specific sociological patterns of developing the group responses, which are inherent in various macroregional entities, monitoring the sustainable social development of the most problem regions and territorial communities, conducting the comparative analysis of perception in these regions, as well as identifying the changes over the last three years. The developed forecasts and received recommendations were submitted for the direct application in the actual practice of the regional authorities to reduce the degree of the social tensions (the people's protest) and neutralization of the current conflict factors in these territorial communities, namely, the implementation of the proactive countermeasures against extremism. The research data could be also included in the further research

activity related to the study of the ethnodemographic, ethnopolitical, social and cultural, confessional processes in the South and North Caucasus districts; as well as the methodological framework in the research fields of the exact knowledge related to the social diagnostics and developing the mathematical models of the complex and dynamic social processes.

5. Discussion of Developing the Forecast Module

Next it should be noted, that it is methodologically important to carry out situation tuning during the implementation of the proactive countermeasures against extremism, when loss of the external evidence of such threats could be observed, when the rapid situation development is possible, and there is the need for taking countermeasures while detecting only weak signals of tension escalation. Under these circumstances, the evaluations of the quasi-static behaviour dynamics at the perception level in case of slightly varying external conditions (external disturbances) allow generating the forecast for the situation development and, accordingly, the scenario of overcoming (predicting) the negative process development.

As it has been already said, the obtained potential of the political tensions will also allow studying the complete system dynamics, it is necessary to implement accounting the stochastic nature of the identified factors. Attainability of solving this issue is provided by using the "virtual reality" methods based on the multiagent modelling paradigm (Grier et al., 2008), determining the situation development forecasting way. For these purposes, the newly developed stochastic dynamic model of the emotional attitude to the political system, in which the analysis is carried out not by the average parameters, but by the individual ones, is suggested.

Any change in the individual is primarily caused by his external social field, i.e. his environment - the group of people, who have the strongest impact on establishing his identity. Thus, coming into the contact with his environment the individual transforms his own features. In the multiagent model, each agent has a certain set of characteristics, such as the passionarity level, the level of protest, the probability of interaction with the agents of his own or another's type, etc. (Kopecky, 2010). The model is the interaction between the specified categories of agents in the social and information space over the set time. In the model such parameters, as the population flows, mortality, social and reproductive ability (the ability to generate new agents similar to oneself), efficiency of the altruistic or selfish behaviour strategy, efficiency of the agents' interaction with the members of their own and others groups, etc. could be taken into account. While making the managerial impact on these parameters, the researcher has the opportunity to affect the number and quality of the agent categories, in which he is interested. Researchers could give instructions to hundreds or thousands of agents, who will simultaneously carry out these instructions. In the future, during the model operation the agents begin to group, which is characterized by the actual social behaviour of the people - individuals gather in groups of common interests. Such modelling makes it possible to study the relations between the behaviour of the particular individuals and the results of the individuals' interaction at the group level. The models of this type not only allow studying the trends of the issue and the solutions, but also give unexpected synergistic results.

Thus, (Epstein, 2002; Lustick, 2002) show, that the adaptive adjustment of the model of the social conflicts relating to the extremist activity, such as the terrorist orientation, offers an innovative and promising approach to understanding and analysing the complex dynamics of decentralized uprisings and terrorist actions, helping to create the effective ways to fight against and to prevent them. Along with the already identified and theoretically described features of studying the social conflicts using the similar models the proposed adaptation allows taking into account the features of the extremist activity in the southern regions of Russia. In particular, this accounts the presence and influence of the ethnic separatism and Islamic radicalism on the developing tension degree; dividing the space of the agents' model interaction into the mountainous and plain subspaces, which characteristics are determined by the actual characteristics of a specific region of the North Caucasus; forming a special group of agents within a model, providing them with special characteristics in accordance with the current statistics of the terrorist underworld in certain North Caucasus regions.

Such solution is proposed to be used in creating a forecast intelligent module, in this case, from the methods and models of the social and political tension forecasting evaluation, being the scientific basis for the procedure. A natural step towards identifying the new system properties as a result of interacting the individual model agents is made. The whole is more than its parts that is why the interaction between the parts is investigated. This new required system property could be separated from the properties of the system parts and could have its own new properties. It is, that seems to be the consistent and emergent use of different research and modelling methods.

Thus, including the means with the "virtual reality" methods based on the multiagent modelling paradigm in the procedure allows establishing the situation development forecasting way, as well as reducing the degree of the social and political tensions for a long term, preventing the formation of tension centres and its support and

initialization environments.

6. Conclusion

Nowadays the social and political conflict area attracts attention of the experts in different social and psychological knowledge fields. Detecting the potential threats and risks to the sustainable social development of the certain regions and territorial (national) communities in the early stages involves the extensive use of the social diagnostics, analytical forecasting and mathematical modelling the "problem" fields of the social activity. As a result, nowadays the social and psychological diagnostics, as well as social and mathematical modelling are one of the important trends in the social and political conflict studies, and at the same time it is used for actual optimization of the main activity fields of the modern society.

At all the research stages the proposed approach allows using the required for the social and political process area combination of formal methods and non-formal (expert) knowledge, focused on finding new ways to settle the issue of forecasting the situation development, which a formal model does not contain. In this work the approach is intended to implement the managerial principle, referred to in the context of the social and political processes - the principle of the proactive countermeasures against extremism. Its main advantage is predicting the responses to the events caused by the extremist activities, and initiating the changes, which prevent predictable responses. The basis for such prediction is the forecast models performing the evaluation of the current state of the system and the evaluation (forecast) of disturbance, generating the forecast of the system response to disturbance and the countermeasures against disturbance scenario. As a result, we obtain the required intelligence module, which consists of the methods and models of the social and political tension forecasting evaluation, being the scientific basis for the proactive countermeasures against extremism. Its core includes a new procedure of monitoring the group political attitudes by measuring its affective and cognitive components, the extended psychosemantic phenomenological model (based on more complete integration of the social psychology approaches, the theory of measuring the social processes, the catastrophe theory, etc.), as well as a fundamentally new integrated simulation model of the group and individual response based on the multiagent modelling paradigm.

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