Perspective Use of Modeling for Information Counter-Terrorism

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Abstract

The article substantiates the use of mathematical modeling for exploration of security provision and information counter-terrorism issues. A set of prime objectives to solve this problem has been determined. Solving a single complex of these objectives will allow for future development of methods of production of managerial solutions in information counter-terrorism and for development of suggestions on improvement of counter-terrorism and counter-extremism policy.

Keywords: terrorism, modeling, information counteraction, security, information resources, counter-terrorism.
Introduction

Nowadays, the counter-terrorism issue has become global due to severe threat to civil interests, social safety, stability of countries and international relations. Provision of security and counter-terrorism are a major priority of interstate activities.

Prevalence of information content in all social fields causes urgency in exploration of information terrorism threats and modeling of occurring threats and reacting against them.

Scientific substantiation of activity in the field of information counter-terrorism is impossible without a clear understanding of the very essence of the "information counter-terrorism" concept. The definition of this concept should be considered based on the system-cybernetic approach [1]. This approach suggests considering a set of interrelated subjects and objects [2] existing and functioning in a particular social environment in order to explore the essence and content of the studied concept. It is also necessary to take into account the goals, objectives, areas and forms of activity of these subjects. Moreover, the subjects of counter-terrorism shall take measures involving the effective use of their own information resources for sustainable preservation of the qualitative characteristics of information and cultural environment of the society. This results in a desired effect in the prevention of acute conflicts.

The possibilities for terrorist threat expansion spread along with the development of information technologies. They primarily appear due to the Internet development, a wide-scale shift of banks, financial and trading companies to computer operations around the world. Practical implementation of information technologies, development of computerization and informatization of all social spheres in the world inevitably leads to the creation of a single world information space [3]. In the course of development of the information sector and spread of the global network, the issue is of particular importance. Regular outbreaks of terrorist activity in the Internet and media, activation of national and religious sentiments testifies to the severity of the problem [4,5,6].

Globalization of information technologies highlights the information component of counter-terrorism making exploration of approaches to the information counter-terrorism urgent [7].

Problem Statement

The spread of terrorist and extremist ideas through the information and telecommunications Internet network and mass media (the media) is one of the major external factors that contribute to the emergence and spread of terrorism around the world [8,9]. The level of the potential information impact of terrorism on the society, the expansion of its power increases as more information flows are obtained.

It should be noted that computer networks are becoming a powerful weapon for terrorists. The distinctive features of information terrorism and extremism: low cost, detection complexity, anonymity, invisibility, invulnerability of a terrorist on the Internet during the criminal acts.

Modern mass media and mass communication media, social networks and blogosphere are a major channel of collection, processing, transmission and dissemination of information. They are an effective means of information management and play a particularly important role in terrorist estimations [10]. There is purposeful intervention into the human subconscious in order to create the mindset favored by terrorists in the collective psychic consciousness. It carries a tremendous threat regularly observed by us in the last few years in a series of "color revolutions", the actions of a destructive nature in Ukraine, Syria, etc.

Terrorist activity is not only aimed at material damage and endangering life and health of the population but also at information and psychological shock. A favorable environment
for the relevant objectives is thus created where information sphere and information resources are used for:

- activism and recruitment of members of terrorist organizations, training and leading them;
- implementation of an information or other aiding in planning, instigating to preparation or implementation of a terrorist or extremist act;
- propaganda of terrorist and extremist ideas, dissemination of materials and information calling to terrorist activity or substantiating and justifying the need for such activities.

This leads to the conclusion that the media reports on the committed terrorist acts arise loss of spiritual values, promotion of the "violence cult" and spiritual and moral values contradicting the values of society. [11]

As a result of the above, it shall be noted that counter-terrorism and counter-extremism measures should be comprehensive and systematic. They should be aimed at not only identifying terrorist individuals and groups, destruction of the international terrorist relations, advance awareness of impending terrorist attacks [12]. These measures shall primarily include measures preventing information spread of ideas and threats of terrorism!

In general, such threat will maintain as long as there is a system of terrorist infrastructure reproduction. The basic elements of this system include terrorism and extremism ideology [13, 14], its actors (masterminds and carriers), as well as distribution channels for this ideology. Obviously, these basic elements shall be the center of the effort in the social and informational environment against organizations, non-governmental organizations whose activities are aimed at violent change of the sustainable development, disruption of the security of society, states and civilization as a whole.

Thus, the main objective of counter-terrorism in the modern world is protection of an individual, society, nations and civilizations from terrorist threats and their manifestations. The main task of the counter-terrorism and counter-extremism subjects includes information counteraction against spreading terrorist ideology, implementation of active antiterrorist outreach measures.

From the standpoint of a system-cybernetic approach, the information counter-terrorism is activities of counter-terrorism subjects united with common goals and objectives by using mutually agreed forms, methods, techniques and means of influence on the subjects of social and information environment. This influence is carried out in order to eliminate the causes and conditions for dissemination of terrorism and extremism ideas, detection, prevention and suppression of acts of individuals and organizations aimed at the use of information resources for terrorist purposes (Figure 1).
Currently, integrated approaches to exploration of security provision and counter-terrorism and counter-extremism are not implemented in full. This is largely due to the fact that terrorism tends to constant change and improvement of its forms and methods facing the scientific community with a number of important new research problems. The methodological device of information counteraction against dissemination of terrorist ideas is far from being complete. The issue is very important, insufficiently studied and requires constant attention and adjustment.
Solution Techniques

Such research method as modeling can play an important role in this process. Management requirements are no longer limited to the analysis of what is happening; it is necessary not only to identify the system's response to the impact of ongoing management, but also to model a possible reaction to the planned impact [15]. Such an approach makes it necessary to create models that allow for prediction of the results of information counter-terrorism.

Besides, very few researches, which would suggest possibilities of using high technologies including mathematical modeling in order to identify the best social and information influences to reduce the current threats of terrorism and extremism, are currently conducted [16].

In this approach, the need for modeling of counter-terrorism information defines certain tasks whose multiplicity is determined by lack of integrity and fragmented knowledge available through the relevant research on the subject. A single set of tasks aimed at solving this problem includes:

- development of theoretical and methodological fundamentals of information counteraction to terrorism and extremism;
- substantiation of the benefits of the modeling method when studying terrorism and extremism as a social phenomenon;
- articulation of the factors and conditions of occurring terrorism and extremism in the social and informational environment to formalize the parameters of the information counteraction model;
- analysis of methods of information counteraction to terrorism and extremism;
- study of the structure and content of the information counteraction occurring in terrorist and extremist activities in the social environment;
- development of models of informational influence, control, and counteraction in the social environment;
- study of models in order to create optimal control social and information influences to reduce the existing threats of terrorism and extremism.

Solution of these tasks will allow for future development of science-based management decisions on information counteraction to terrorism and extremism through the preservation of the qualitative characteristics of information and cultural environment of the society, as well as for development of ideas for improving counter-terrorist and counter-extremist policy based on the research conducted.

The modeling issue in this subject area is complicated by the limited nature of open and available information, complexity of formalization of many components of information influence, as well as the complexity of simultaneous consideration of multiple factors (including random ones) affecting the results of information counter-terrorism.

Global information networks are becoming a universal infrastructure for the creation of new public, social structures, which can significantly affect such categories as state, society, personality. The Internet extremely decentralizes the opportunities for social design, reduces the cost of communication possibilities. Therefore, the social networks that can be a kind of superstructure over the state and can possibly become a strong information mechanism for modernization of society, state, which in fact is already happening now, are of special interest.

In order to find effective ways to prevent various forms of terrorism, as well as to provide counteraction to terrorism and extremism, correct choice of means and methods of
such counteraction, it is important to perform a comprehensive analysis of this socio-political phenomenon, its thorough theoretical interpretation. The ability to adequately assess the risks and provide elements required for model construction and evaluation can be effective only under the following conditions. It is necessary to have a good knowledge of the studied phenomenon, its nature, sources, driving forces, mechanisms of formation and functioning of terrorist organizations, motivation of the subjects of terrorist activity, sources of social, financial, material, military, ideological and advocacy support. To achieve this goal, a systematic approach to the problem shall be used.

Conclusion

Development of the information counteraction model is focused on the effectiveness of planning and predicting threats to take near-term, mid-term and long-term measures. At the model study stage, one can assess a potential threat of terrorist actions, coordinate efforts at all levels of management and social life to develop reasonable counter-terrorism methods.

To provide sustainable development of civilization, globalization requires improving the quality of information and communication infrastructure. It shall be reliable and secure.

Security and integrity of the information space shall be ensured to prevent it from external access and information leaks at its various levels, which is of great importance on a par with the traditional tasks of territory and facility protection.

It is suggested that, given the issues of information counter-terrorism, the analysis of perspective use of the modeling method can be implemented for further scientific understanding and justification of the need for such activities in implementation of the information counter-terrorism policy.
References


