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METHODOLOGY FOR RESEARCH THROUGH SIMULATION BUSINESS GAME AS A TOOL FOR STRATEGIC MANAGEMENT AND CONTROL

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Abstract

Modelling a business game to test the building of capabilities for enhancing institutional resilience requires a thorough knowledge of the underlying in the reviewed process base concepts (for counteracting hybrid threats, for building defence capabilities, for the functioning of the business model of the national security system and etc.) and following a specific management strategy. The business simulation games should be seen as a concrete model of abstractions from the reality. Therefore, when analyzing the results of their implementation, it should be borne in mind that the tested coherence of a theory or concept can be successful in a particular model or simulation, but this is not actually a guarantee of overall consistency with the real world, especially when testing newly developed theories and concepts with many conventions. Therefore, the selection of concepts, variables, the way the model is developed, the approaches to conduct, and especially the management of this type of scientific research are of particular importance. Of course, the most profound impact on the results is the level of professionalism in preparing the analysis of the results of each business simulation game.

Keywords: Simulation Business Game, National Security System, Tools, Cyber-Attacks, Business Game

1. Introduction

Modern treating of the term „programming“ defines it as a general principle of management, on which grounds the subject undertakes his actions with certain means in the direction of the goals, in compliance with the dynamic changes of the surrounding environment. In other words, upon the concrete content, structure and dynamic of goal, the activities for its achieving are influenced by the challenges of environment, where the system functions, by the extent of the knowledge about them and the dependence of the subject, its value orientation, the priorities, possibilities it has, the chosen forms and methods for achieving the desired result. This, more

than ever defines the necessity of alternativeness of decisions and the choice of optimal variant that contributes to management by results. On that grounds, the so-called program-target approach of management originates, which manifestation is in “Planning-Programing-Budgeting-System” (PPBS), whose advantages and disadvantages are among the issues discussed in the presentation alongside the core of social programing as mechanism for management oriented towards results, and the controlling as technology of management about planning and controlling processes standardization.

What makes the approach unique for application is namely the integration of its three main components - goals, programs, program-target structure. And if the goals are associated with the mission (the strategy), and from here – the necessity of “unity of goals within the frame of a single organization and the ensuring on the grounds for distributing the organizational resources”, hence also revealing the organizational potential, then the programs appear to be the specification of the ways the resources for achieving the goals are to be used. For that purpose, each program contains certain tasks distributed in time and related to the relevant executors. From here, each of the PPBS components expresses particular managerial phases. This way planning determines the long-term goals pointing what is firmly intended to be done. Programing is associated with the analysis and evaluation of the ways and possibilities for achieving the goals (elaboration and selection of alternative programs) in compliance with the analysis “expenses-effects (benefits)” and the application of quantity methods of management. Said in other words, the program is a plan with certain time terms (dates), and this way the time when the thing that firmly is intended to be done, is pointed. Budgeting (financing) is associated with the choice of the advantageous and most effective programs and with their inclusion in the budget for financing and execution. And, as far as budget is nothing else, but a program with mapped out prices, it gives a notion of how much funds are necessary and when these are to be ensured in order possibility to be ensured for what is firmly intended to be done, to be done at the exact time (Terziev et al. 2015; Terziev, 2015).

Through the system approach, the pointed managerial phases are integrated in a unified system of interrelated grounds and in a certain relation and subordination to financing. The following principles are of primary significance:

- Long-term nature of goals and the expected end results;
- Prioritization and succession of activities and grading of resources in circumstances of their scarcity;
- Complexity of studying each problem – review of each issue or separate field of activity as system. Here the treating of each system as component of such a higher rank comes from and the subordination of goals and tasks of the separate sub-systems to the general system’s goal;
- Multi-variance of decisions, of the ways and methods for achieving a given goal, which requires elaboration of alternative decisions for action;
- Evaluation and juxtaposing the effectiveness of the separate alternatives on the grounds of objective criteria with the help of system analysis and its toolkit (modeling, economic-mathematic methods of study and analysis of value, value-effectiveness or value-usefulness, the method of operational studies, machine and game imitating, etc.);
- Continuity of planning or of the application of the so called continuous planning horizon and making the necessary corrections of plans and programs in the process of their execution;
- Combing the program-target approach in managing with programs financing in compliance with the extent of achieving the goals.

From here, the application of economic approach to each activity – object of managing, managing grounded on the system approach and analysis, financing on program-target grounds, which, in their core, are three fundamental theoretic-methodological applications, is grounds for PPBS functioning. This is what defines PPBS as managerial concept of specific goals and tasks. The more substantial of them are specifying the national goals; soordinating

the activities at the various levels with these goals; analysis and value evaluation of the possible alternatives for acting; and enhancing control's role and effectiveness through financing.

Namely managerial apparatus activity's coordination and its directing for the preliminary set goals' realization appear to be the content of programing. The value evaluation of the possible alternatives and their analysis as well as enhancing control's role, meaning and effectiveness is connected with ensuring the funds, the financing, which is the most substantial system's element. On that ground, the positive features of PPBS are derived, which expression is in:

- The possibility for coordination of planning and preparation for budgeting;
- The application of continuous planning horizon method, on which ground subordination and centralization of the decisions preparation process becomes possible;
- The conduction of analysis of long standing, which allows evaluating the advantages and disadvantages of each possible decision (globally and rationally), and from here, the choice of adequate to the goals alternative;
- Economic grounding of the made decisions regarding expenses usefulness and expedience;
- Taken decisions execution's commitment to their financing, which is expression of both their economizing and effective use of resources.

PPBS leaves the impression that it presents the budget as declaration of general policy, which defines the resources necessary for the management end goals achieving. At the same time, the system observes activities as an intermediate stage of transforming the resources into services and usefulness of each program. This, in its core, is expression of the subordination "expenses – effects", which is in the base of managing by results.

Of course, PPBS is not deprived of weaknesses. Taking into consideration that some of the goals and tasks have specific nature, Terziev and Stoyanov, (2017a, p. 618) state that, "the greatest difficulty and the main weakness of the whole system lays in the fact that it is difficult to formulate sub-goals possible to serve. As a result, operative instruments of the current policy out of the general and universally recognized culturally specific values as peace, freedom, security, justice, education and healthcare". From political-juridical point of view, the system widens the possibilities and prerogatives of executive power, while the legislative ones decrease. This is grounds for conflict between them. It should be taken into consideration that PPBS is not bound with the year cycle at drawing the budget. As a result, the practice of duplicating the decisions taken on the grounds of the programs, synthesis of the various analytical studies and of outlining the future goals is not unusual. Not always are they conformed to the environment's priorities and changes. Not the least, the great documents flow and turnover creates administrative inconveniences and deepens the bureaucratic processes. These are the reasons for PPBS in the end of the 60s and the beginning of 70s, already transferred from the American army to the civil structures, to stop in its development at doctrinal and experimental level. In the present circumstances, even though it has lost some popularity, PPBS modified variants leave lasting traces in the practice of budgeting. It has been adopted for application also by the newly accepted NATO member states.

2. Programing as mechanism of managing, oriented towards results

The simultaneous adequate differentiation of the management phases - planning, programing and budgeting, and the proper evaluation of their interaction are in support of choosing these states. We speak here about one intransient merit, which is not to be underestimated. Besides that, it requires special attention at the correlation between revenues and expenses. Particularly, the actual price of the transformed resources necessary for achieving the preliminary set results, defined as possibility or fulfilment of obligation, which is in support of the management by results, of the role and place of programing in the social processes management, is taken into account. It, the management, applies a certain toolkit for influence upon people, which includes (Terziev and Arabska, 2015, 2016; Terziev, 2020a, 2020b):

- Hierarchy – organization, where the way of influence (attitude towards power) is subordination, the pressure upon a person from above with the help of compulsion, the control over the resource distribution and others similar to these;
- Culture – as manifestation of elaborated and recognized by the society and the organizations groups of values, social norms, formulations and stereotypes for behavior, rituals, requiring people to behave after strictly defined manner;
- The market – expressed through the net of equal in rights relations along the horizontal, grounded on the purchase and sale of various goods, of property, on equilibrium on the interests of seller and purchaser. In live, real economic and social systems, they almost always exist. The more important is what is given priority to and what is staked on mostly.

As far as programing is accompanied by the use of the pointed toolkit of management, the circumstance that it is what is ensured by the organization, which, itself, is hierarchical, with the inherent relations of power, subordination, etc., where there is systematic, conscious uniting of the activities of people, haunting the achievement of certain goals, is in support of the statement that it is a general principle of management, and more, of management, oriented towards results. Moreover, this organization ensuring through programing could be presented as number of certain components. The word goes about:

- Connecting the goal with the possible tools for achieving, choice of variant and its establishing in its capacity of a necessary one;
- Elaboration, reproduction and correction of an anticipating algorithm or prototype of actions leading to achieving the goal; structuring of these actions in a certain way, giving them expedience and succession, without which the actions themselves are only single, fractured acts not connected in a common process;
- Communication of the program with the agents, monitoring of their activities under it.

From here, programing appears to be an important element in the purposeful systems, a special variety of which organizational systems appear to be. Organizational system in its essence is such a system, which purpose is coordination of the actions of the purposeful parts, what the social groups and individuals are, and goal direction (activity means and objects) with the global goal, namely – getting certain result (basic end product). Said in other words, programing after definite form and way connects the purposeful part of the organizational system with the means and the objects of activity. This way hierarchy, distribution of power-ordering and executive functions among the program subjects occurs.

The strong interrelation between the forms of organizational system and programing is to be taken into consideration. “The hard” (relatively called “administrative-commanding”) organizational system, as a rule, determines the corresponding forms of programing and the types of programs from directive plan type. “The soft” (“liberal-democratic”) system determines only the general reference points and recommendations for their achieving. In practice, however, we may see also various symbioses between “hard” and “soft” systems in the multiple combinations of programing.

This is one side of the interrelation between the forms of the organizational system and programing. Not to be ignored is the other side, where the manifestation is in the reverse impact of the form of programing and its product – the programs, upon the organizational system. The elaborated and fixed in certain from program might determine certain shape of the system. The changes in the program (the corrections), as a rule, lead to corresponding changes in the system.

Programing is directly related to another historically worked out approach for managerial influence. The word goes about culture. Here also, a deep interrelation is found, rooted in the essence of culture. It, the culture, is reviewed as specific human method of activity, as “combination of sustainable forms of activity”. It is in the base of the life activity of the single individual or the personal culture, the culture of the social group or the class culture, or the culture of the society as a whole. Such approach is supplemented by the axiological or the value essence,

which manifestation lays in the fact that culture is observed as combination of human values, as all that elevates, ennobles, and humanizes life and human relations. The sociological approach to culture, according to which it is understood as specific, genetically not inherited combination of means, methods, forms, samples and reference points for interaction between people and the inhabited environment, which they work out in their concomitance for maintenance of certain structures of activity and communication finds further development in the recent years. Sociological approach observes culture as system of collectively accepted values, beliefs, samples and norms of behavior, inherent to a certain group of people. Culture is the collective programming of human intelligence, which distinguishes the members of a group to another. The point that the general level and the characteristics of culture have significant effect on the forms and the content of social programming in a certain society should also be taken into consideration. Social programming, in its cultural mien (aspect), is grounded on the fact that only the social relations contributing to human personality progress could create all necessary preconditions for the “algorithmic manner of culture” as way for acting to become consecutively rational, overcoming the stochastic subjectivity, the elemental uncontrollability and the preconditions for that, the free human activity to constantly ensure the outcome of these algorithms, the elevation to the methods of activity, renewed by the own human deeds for creative capabilities. Here the complete manifestation of the essence of social planning lays in its creative influence upon social reality, ensuring its practical transformation in compliance with the adequately recognizable values of human world.

The approach towards culture as codified system (and, as a rule, reflected in bearers of various type), samples and norms of behavior, activity, communication and interaction among people, who carry regulative and controlling function in society, deepens the understanding of its interrelation with social programming. Elaborating form and way of acting, which manifestation is in all the elements in the programs, starting from revealing the goal and finishing with verification of the achieved result, happens on the grounds of the value orientation of subjects, the realizing and choosing the most significant needs and ones or other ways for their satisfying. This, in its turn, is connected with the normative side of culture, which, through the programming, gets regulative-managerial solution and here the manifestation of the ambiguous connection of programming and the market with its “invisible hand” is.

At first sight, the contradiction between the two categories imposes itself. Programming – with its immanent characteristic towards introducing system, structuring of processes, formalization of the impact upon them, and the market – with its classic characteristic of elemental interweaving and collision among the various public forces. A more extensive study of the essence of these categories reveals number of connecting moments. After all, social programming should be distinguished through market, as a social institute, with the state programming of economy of market nature, and through it, the social sphere, too. The first one of them appears as social programming, through the market’s invisible hand, found yet by Smith (1981). Market’s invisible hand, programming the egoistic interests of producers and consumers, directs them towards a goal that is not within their intentions. Following their own interests, they undertake actions that serve the interests of society. In compliance with that, the effective social programs are to foresee the benefits from the investments in one or another component of theirs. The state programs entirely financed by the state budget are not effective either economically or socially as far as economy as a whole defines society’s wealth by definition. Programmatically, Smith (1981) expresses this statement in the principle “Laissez faire”, according to which single people and enterprises are obliged to act in the economy without the intervention of state. This status is not realized in any country in absolute appearance in the practice of the social-historical development of that time. However, the intervention of state in the economy to the 20th century is “passive”, incidental and in most of the cases bears the character of extraordinary measures in times of wars or of indirect regulating by the means of legislation and the monetary system. The system intervention of state in the economic and other field of public life increases in the 20th century. Within that general trend, one of the central places is occupied by the issue for the correlation between the state regulation and the market self-regulation. Experience outlines three directions (models) at solving this issue, namely - in the USSR and the group of countries from Central and South-Eastern Europe, Central and South-Eastern Asia, known as socialist coun-

tries. According to the generally accepted terminology in the “communist block” to the beginning of 90s, under the influence of the Marxist doctrine and its modifications, a model of centralized, directive planning of economic and social development, rejecting the market, is realized. Moreover, alongside with the process of nationalizing the economy, growing of the spheres of social life, directly or firmly regulated by the given system was going on. Within that model, number of methods, particularly the balance one and the normative one are found, practically applicable in each form of programing. This model gives also stimulus for elaborating the methodology and experience for social planning, social design and some other forms for social programing (Terziev, 2019a; 2019b).

Programing has special stimulus after the Second World War in Western Germany (in connection with „the Marshall Plan”), in France (State Plan for Development of National Economy for 1947-1952), in Japan and number of other countries. Contradictory phenomena are observed in the further development of state programing in the countries with market economy, connected with increasing at times, decreasing at other times state intervention in certain social-economic and political situations. As a whole, „the joining” of market factors with programing becomes one of the leading trends in social development. Nevertheless, the thesis “Laisser faire” is not forgotten and is not thrown out of political dictionary. It acts as a principle of the public forces that contain the immanent forces of each country to subdue everybody and everything. Practically, each company elaborates perspective and current ‘business plans’, marketing projects, programs for work with the personnel and other similar programs. Within programing technologies like “indicative planning”, “planning-programing-budgeting” (PPBS) and others are found and elaborated. International social programs that take into consideration the market conditions in their realization are elaborated under the aegis of the international organizations (UN, UNESCO, EU, International Labour Organization, etc.). In this complicated structure, even at national level, ‘the law for planned and proportionate development’ is not realized, because of which the system of total state directive planning is constructed. It is the one that gives possibilities for certain organization of interaction among the interested participants in socially significant activities.

Programing is mechanism that refers to the class of the very complicated systems, where the components possess great freedom of behavior. The connection among the elements as well as the one of the system with the environment, are distinguished with flexibility and instability. Element exchanges the order. The system’s composition and structure are not precisely defined; its boundaries are not precisely set. A lot in the system is unclear, indirect, “distorted”. This gives us grounds to define it as arranged-elemental process. Despite that, the term leaves the plane of political and ideological reasoning on the subject “to be or not to be” and comes into use of public management with the requirement for deep theoretic and methodical revision and methodical-technological rationalization, which manifestation is in the elaboration of programs as expression of the prescribing (deontic) side of human activity (Terziev, 2019a, 2019b, 2019c, 2019d).

3. Methodology for research through simulation business game as a tool for strategic management and control

Modeling a business game to test the building of capabilities for enhancing institutional resilience requires a thorough knowledge of the underlying in the reviewed process base concepts (for counteracting hybrid threats, for building defence capabilities, for the functioning of the business model of the national security system and etc.) and following a specific management strategy. To this end, in order to stimulate the specific behavior of the participants in the simulated scenario, specific variables and theoretical constructs are identified. In this particular case, following the concept of counteracting contemporary threats must provoke the creativity of participants in rationalizing the potential threats and the institutional areas of responsibility for counteracting their manifestation. Important for the reliability of the obtained results are the choice of roles, levels of analysis, management mechanism in order to reduce abstraction. Selecting certain criteria for evaluating the model of the business game itself can help to avoid subjectivism and follow specific theoretical assumptions in the studied concepts.

The business simulation games should be seen as a concrete model of abstractions from the reality. Therefore, when analyzing the results of their implementation, it should be borne in mind that the tested coherence of a theory or concept can be successful in a particular model or simulation, but this is not actually a guarantee of overall consistency with the real world, especially when testing newly developed theories and concepts with many conventions. Therefore, the selection of concepts, variables, the way the model is developed, the approaches to conduct it and especially the management of this type of scientific research are of particular importance. Of course, the most profound impact on the results is the level of professionalism in preparing the analysis of the results of each business simulation game. In the present case with the aim of increasing the relevance of the study results, they are compared with the results of the previous study with an expert evaluation card.

Several areas of discussion have been identified for the organization of the Business Game, in which the lack, shortage or out-of-date of current institutional capacities, combined with the lack of appropriate management practices, would allow for the occurrence of functional problems and constraints to reveal new challenges, risks and threats for the national security, the manifestation of which could become hybrid in nature or cause unexpected and unfamiliar hybrid effects with severe damaging effects and consequences for the national security.

In accordance with the likely origin and content of the national security challenges, the discussion areas are classified as follows (Table 1):

Table 1. Classification of discussion areas

1. Discussion Area 1
1.1. Identification of potential (hybrid) threats that may endanger the national interests of the Republic of Bulgaria:
1.2. Potential subjects with impact capacity and capability
1.3. Likelihood of manifestation of threats
1.4. Hesitation in the society and government of the country regarding the European and Euro-Atlantic choices of the country, manipulating the society through incorrect and manipulated information in the media space
1.5. Cyber-attacks, changing the content of sites and creating psychosis among the population
1.7. Loss of the intellectual potential of the country
1.8. Information campaigns against the state
1.9. Threats against the political and social stability and the integrity of society
1.10. Seizing economic positions through the privatization of larger state-owned companies
1.11. Spread of radicalism
1.12. Terrorism, extremism and international organized crime
1.13. Focused efforts for the long-term merging of structure defining industries
1.14. Potential subjects, capabilities and impact capacity
1.15. External subjects: Union and non-union states, non-state entities, non-governmental organizations, illegitimate structures, international organized crime
1.16. Internal subjects: private corporate entities, criminal structures, individuals (hackers)
1.17. Beneficial impact: NATO and EU membership and no immediate military threat
2. Discussion Area 2
2.1. Defining the necessary capabilities to counter hybrid threats
3. Discussion Area 3
3.1. Defining and analyzing the existing institutional capabilities to counter hybrid threats
4. Discussion Area 4
4.1. Lack of abilities to counteract hybrid threats
5. Discussion Area 5
5.1. Forms and methods of interinstitutional interaction for the formation and use of capabilities to counter hybrid threats

The in-depth discussion facilitated the initial classification of key features of hybrid threats, such as:

- Deliberately planned and controlled use of overt and covert tactics,
- Conducting military or non-military information, cyber, intelligence operations,
- Political, diplomatic, and economic pressure,
- Use of conventional armed forces,
- Generation of vagueness and ambiguity among the attacked and the international community to disguise true goals,
- Blurring the line between peace, aggression and war,
- Lowering the impact profile to prevent allied and international reaction,
- Exploiting the weaknesses and vulnerabilities of contemporary society, institutions and countries,
- Weaknesses in national institutions, state governance and corruption,
- Lack of confidence and support for internal security and defence,
- ethnic division and neglect of the interests of large ethnic groups - political and economic marginalization,
- Critical dependency on resource import, economic and energy dependency, strong dependence on critical infrastructure - finance, energy, communications and transport, cyber vulnerability.

As a result of the discussions, concrete proposals and recommendations for enhancing institutional and public resilience are expected through:

- Working institutions and political system with broad public support,
- Transparency in the financing of political parties,
- Rule of law and fight against corruption,
- Respect and protection of the civil rights of citizens,
- Access to administrative and social services,
- Reducing social exclusion,
- Establishing common criteria for the protection of national infrastructure,
- Protection of critical infrastructure, reduction of the number and scale of critical vulnerabilities of the country, of the information systems and networks,
- Diversification of the sources for resource and energy supplies,
- Reducing the possibility of sudden interruptions and filling the shortage of resources,
- Abilities to respond immediately to internal tension and uncertainty,
- Support from membership in unions and international organizations,
- Specialized training and exercises.

The selection of five possible areas for threat occurrence and multiple variables in the organization of the particular business simulation game facilitates the presentation and, subsequently, testing of this research practice with the preliminary attitude that, in order for any simulation to be effective, during the organization and conduct of the business simulation game should be planned, as far as it is possible, to achieve a smaller number of objectives. The pursuit of numerous goals leads to an increase in subjectivity and conditionality, which may compromise the chosen model of the game, and it may be that insufficient attention is paid to its main tasks.

In accordance with practically proven limitations in the application of the theory of simulation games, the level for conducting the game and evaluating the results is one - strategic, national. The operation on several levels, even just one in the context of the other (operational level in a strategic context) leads to a number of conventions and failure to account for the dynamics of the two different levels, or to placing one of them in a static state, which would lead to a decrease in the qualities of the final results of the study.

4. Conclusion

The analysis of the results of the business simulation game should focus on solving the specific initial tasks and achieving only the intended goals. The use of business games as a method of scientific study does not allow for full coverage and consideration of all constraints in the internal structure and functionality of the represented institutions, so the study focuses solely on the relevance of the regulatory obligations to identify potential challenges for the national security in pre-defined areas of manifestation and the ability to respond with the availability the institutional capacity (Terziev, 2019b).

The methodology developed for assessing the role and capabilities of counteracting hybrid threats to the institutions of the national security system allows: Definition of potential hybrid threats, whose manifestation may endanger the national interests and the national security of the Republic of Bulgaria; Identification of the areas of available institutional capacities; Identification of the deficits of institutional capacities; Determination of the need for institutional capabilities to respond to hybrid threats and the opportunities for their creation; Identification of forms of interinstitutional interaction for the creation and use of capabilities to counter hybrid threats.

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