

# VERIFICATION OF THE RESULTS OF THE DELPHI METHOD FOR LONG-TERM FORECASTING OF THE NATIONAL SECURITY THROUGH SOCIOLOGICAL STUDIES

YUKSEL AHMED

PHD STUDENT  
AT THE UNIVERSITY OF LIBRARY STUDIES AND INFORMATION TECHNOLOGIES

**BULGARIA**  
YUKSELAHMED@IHIST.BAS.BG

**ABSTRACT:** DELPHI METHOD IS THEORETICALLY SHOWN IN A NUMBER OF THEORETICAL STUDIES OF BULGARIAN SCIENTISTS - BOTH BEFORE AND AFTER 1989, BUT FOR THE FIRST TIME REALIZED PRACTICALLY IN BULGARIA BY A RESEARCH TEAM OF THE DEPARTMENT "SOCIAL WORKS" UNIVERSITY OF SHUMEN "BISHOP KONSTANTIN OF PRESLAV" IN 2011 . NEVERTHELESS, THAT IT WAS EDUCATIONAL PROBED IT WAS ACQUIRED VALUABLE INFORMATION AND MOST EXPERIENCED OF THE PROCEDURES INVOLVED. THROUGH THE FIRST BULGARIAN DELPHI PREDICTED FUTURE RISK GROUPS IN BULGARIAN SOCIETY AFTER 15 YEARS, AND ACCORDING TO EXPERT CONSENSUS ARE: MINORITY GROUPS, OLDER PEOPLE / PENSIONERS AND PERSONS WITH ANTISOCIAL BEHAVIOR AND CRIMINAL BEHAVIOR. TO VERIFY THESE RESULTS, THE RESEARCH GROUP REALIZED TWO ADDITIONAL STUDIES SHOWING FULL COVERAGE OF THE RESULTS OF THE DELPHI STUDY CONDUCTED BY UNDOUBTEDLY PROVE ITS EFFECTIVENESS.

**KEY WORDS:** FORECASTING, LONG-TERM FORECASTING, RISK GROUPS, RESEARCH GROUP, EXPERT GROUP, EXPERTS, CONSENSUS, PANEL, COMMUNICATION, ELECTRONIC COMMUNICATION, LIKERT-QUESTIONNAIRE, DELPHI METHOD, MINORITY GROUPS, SENIORS/PENSIONERS, PERSONS WITH ANTISOCIAL BEHAVIOR, CRIMES, VITAL POSITION, EVALUATION, POSITION, NATIONAL SECURITY, SAMPLE SURVEY, PURPOSE, SPECIFIC PURPOSES, POPULATION, EXCERPT, NON-STOCHASTIC EXCERPT, POSTAL SURVEY, ELECTRONIC POLL, METHODS FOR LONG-TERM FORECASTING

## 1. FORMULATION OF THE RESEARCH WORK

"THE INVENTED" by **RAND Corporation - U.S.** [22] [24] [25] Delphi method is present as a theoretical description in various monographs of Bulgarian authors, both before 1989 and after that, when the democratic processes start in Bulgaria. The period from the 70s to the 90s of the last century was considered as the period related to the "boom" of forecasting worldwide. It did not skip Bulgaria, including the former socialist countries, in the light of Marxist-Leninist doctrine. Ideas for long-term forecasting at this time is justified by **D. Pavlov** [16], **S. Kachaunov** [5], [6], **N. Stefanov** и **N. Yahiel** [17], **K. Mirkovich** [9] and others.

SINCE 1989 scientific research related to forecasting and planning, including the examination of Delphi method appear mostly after the beginning of the millennium and are associated with the names of **V. Manoff** [8] **V. Naydenov** [15] **I. Kusev** [7], **Y. Yankov** [20], [21], **S. Ilieva** [3], [4] but there is no information whether it is made to an area of

functioning of the public system. The only truthful information on this issue is related to this article and is presented below.

**FOR** educational purposes Delphi method is realized with professors and students from the "Social Works" in Shumen University "Bishop Konstantin of Preslav" in the period 27 May to 2 June 2011, in the framework of the project "Futurological forecasting for the development of social services in Bulgaria" [2], [3], [4]. The main task of educational probed method is to predict which risk groups will dominate the Bulgarian society in the foreseeable future in 2015. The members of the research group is composed of 2 associate professors and 1 student. To it are attracted: 1 teacher for statistical processing of the results of Delphi method and 1 teacher for statistical processing of the survey in the system SPSS.

**WHEN** selecting Expert Group - Panel for educational probed Delphi method, the Research group meets all the difficulties described in this issue, realized studies of this type. As B. Brown wrote [23 p.9] "The selection of experts is a complex problem even when the category of necessary expertise is well-defined." After discussions, consultations and invitations final number of Delphi panel is formed by 5 experts: Director a home for children deprived of parental care - 1; Director of nursing home - 1; Director of Social support -1, Head of the Department for Child protection - 1; Director home for temporary accommodation - 1.

**FURTHERMORE**, the research group assumes that consensus in the selected panel represents agreement by at least 75% among the experts.

**IN** the realization of the Delphi method the team follows the ten steps described by **J. Faulas** [27]: 1. Forming research team. 2. Election of one or more panels to participate in the exercise, usually participants are experts in the study area. 3. Creating the questionnaire for the first round. 4. Testing to a questionnaire for correct wording. 5. Delivery the first questionnaire to experts. 6. Analysis of the answers from the first round. 7. Preparation of the questionnaire for the second round. 8. Delivery the questionnaires for the second round of the experts. 9. Analysis the answers from the second round (steps 7-9 are repeated as long as they achieve stability in the results). 10. Preparation by the research team of a report containing analysis and conclusions by the realized Delphi Method.

**THE** most important task of the research group is to prevent deviations from the three main features of the Delphi method that distinguish it from all other expert methods **N. Dalkey** [1, p.20] describes: "Overall, the Delphi procedures have three features (1) anonymity, (2) controlled feedback, and (3) statistical group response ... "

**THE** statistic processing of the results is realized according to the methodological development of **E. Bozhanov and I. Vuchkov** [1] invented in compliance that appears konkordion (consensus) of the expert answers, as the end result of the study. The research group works with Likert-questionnaires as first initial questionnaire contained 10 Likert-questions. Delphi proceeds in three rounds.

**THE** results allow the conclusions to be made explicit that the risk groups in Bulgaria in 15 years will be: separate minority groups, the elderly, persons with antisocial behavior and criminality.

REQUESTED TO JUSTIFY THEIR ANSWERS, EXPERTS POINT PRECISELY THOSE GROUPS BECAUSE:

- With respect to those as being at risk in the future, separate minority groups among the Panel was formed the opinion that the basis of this stand mainly poverty and exclusion in which they are located and which, if not be overcome will increase the share of social services directed to these groups.
- The experts are consolidated around the opinion that seniors / pensioners are placed among the three risk groups for material and spiritual problems related to their existence. In order to the sharp drop in the birth rate in Bulgaria group of older people will increasingly growing.
- In order to limit the growth in the foreseeable future of the third group at risk - people with antisocial behavior and criminal behavior, the work group considers that immediately must begin the implementation of effective forms of individual and group psychological work that evoked potentials for development and change of the life position.

**AFTER** completion of the study probed Delphi method the research group decided that it is essential to highlight the ability of the Delphi method to be used with perspective in the social sphere. Therefore, according to the previously adopted plan, are taken two additional tests to verify the results achieved by the study probed method results.

## 2. ESTIMATES OF THE EXPERT PANEL FOR DELPHI AS A RESEARCH METHOD

**AT** the end of the process of realization of the Delphi method experts respond to the "Questionnaire for expressing the experts after the completion of the Delphi method" by which the panelists formulate their personal opinion and assess both the quality of the method and assessment of their personal participation in it.

**THE** analysis of the registered empirical data shows the following:

**THE** outlook for the application of the Delphi method as futurological method in the social sphere, all experts give positive opinions related to the fact that it stimulates thinking and discussion about the future; causes predictive thoughts, with a very large horizon ahead; it is not associated with additional costs for transport or absence from work and family, etc.

**FOUR** of experts formulate a positive attitude to the participation in the Delphi procedure as show that they felt important to predict, what feeling is further enhanced with the thought that they are doing something that is done for the first time in Bulgaria. The panelists agreed that it is possible Delphi method to be successfully applied in the social sphere, but after further probed within a national framework and previously training the people who will be applying it. According to them, it is necessary to overcome the inertia to be working with the same methods.

**EXPERTS** agree that the Delphi method ahead will be successfully applied in all matters related to social issues which are subject to forecasting but mostly funding social activities in the future and predict the impact of new technologies on the national security. According to them, there is no trend in the sphere that can not be long-range forecasting, including with the Delphi Method.

**THE** five panelists give a definite judgment that the Delphi method could be applied in all spheres of development of Bulgarian society, but it is necessary to further the training of persons and organizations that are involved. According to them, Bulgaria recorded a delay in its implementation. But after participating in the study Delphi they would recommend it to their colleagues in the national security as a reliable method for long-term forecasting.

### 3. OPINION OF PROFESSIONALS FROM THE NATIONAL SECURITY FOR THE FUTURE RISK SOCIAL GROUPS IN BULGARIAN SOCIETY IN 15 YEARS. SOCIOLOGICAL STUDY.

**I**n order to confirm the results of the study probed the Delphi method with additional research methods is carry out a sample survey study of the "responders persons" among experts from the social administration of the Republic of Bulgaria about what social risk groups they predict in Bulgarian society after 30 years.

**M**ETHODOLOGICAL basis for the development and implementation of questionnaire survey is scientific work of **S. Mihaylov** [10, p.190-204] "empirical survey" for conducting a sample survey ", according to respondents." The objectives of this study are: 1. Register 1. To probe the registered results of the Delphi method to predict the the risk groups in Bulgarian society after 30 years. 2. Establishing to what extent the Delphi method is known in the social sphere.

**G**ENERAL aggregation of the research is 5,174 respondents - specialists in the system of social. The requirement for the general aggregate [25, p.77] as "a set of studied objects" is fulfilled. In sociological studies of this type is realized non-stochastic sampling [18, p.256], which can be: conscious selection (in typical cases ) according to availability, according to respondents to units; a quota. Where the volume of the sample [19, p.298] is "absolute number of units in the sample" [12]. Towards achieving the goal and objectives of the study was composed Questionnaire for a direct response from the respondents. [11] It includes 17 questions, which is a postal survey - available in e-mail, implemented by using electronic communication between 01.07.2011 - 31.07.2011, including all its stages. From 5174 experts (general aggregation) 'responders' are 276.

#### ANALYSIS AND SUMMARY OF THE REGISTERED EMPIRICAL INFORMATION:

**T**HE respondents by the method of 'responders' experts in the system of social works of Bulgaria express its opinion on questions through direct mail survey realized electronically and represent a sample of Social Administration of the structures of the Ministry of Labour and Social Policy (3.95%), Social support agency (75.37%) and the State Agency for Child Protection (20.68%).

**A**SKING respondents about which of these social services will be available in 15 years can be put in three groups according to their proximity:

✓ In the first group are arranged these that give approximately the same results over 10% of that: in 15 years will be a center for social rehabilitation and integration (12.22%), a center for temporary accommodation (12.36% ) crisis Center (12.17%) and social assistant (11.4%).

✓ The second group can be arranged responses to those that collect between 5.00% - 10.00%, and these are social workers who think that: after 30 years, will have a center for social support (8.21%) home social patronage (5.34%), personal assistant (5.11%) and day center (5.02%).

✓ In the third group are arranged responses gathered below 5%, and these are: foster care (4.78%), protected homes (4.56%), home assistant (4.55%), a center from family-type accommodation (4,35%), shelter (3.91%), center for children on the street (3.68%) and public canteens (2.33%).

**A**CCORDING to respondents, in 15 years, the first three of the above mentioned social groups at risk for Bulgarian society will be: 1. Persons with antisocial behavior and criminal

behavior (20.12%); 2. minority groups (20.67% ) 3. elderly people / pensioners (20,00%). After this rating are: the children at risk (8.45%), unemployed youths (8.23%), people with disabilities and the chronically ill persons (7.43%), chronic poor (6.55%) and long-term unemployed (6.22%). And in answer to this question the opinion of social workers is that large families (2.33%) and incomplete families (0.00%) did not emerge as one of the major risk groups in Bulgarian society in 15 years

**ARGUMENTS** in support of respondents ranking the top three upcoming risk groups consist of the following:

1. Separate minority groups - refer mostly the Roma people, organized in Roma communities / ghettos whose number, according to various sources - NSI and Eurostat will increase so that by 2050 will be the majority population in Bulgaria. In addition, in connection with the above mentioned data becomes necessary in larger horizon of the future - in 2050 for this risk group to think not as a minority in Bulgarian society.
2. Elderly / pensioners - Here social workers again referring to statistics from the UN, Eurostat and NSI, expressing concern that in 15 years the majority population in the world, European and national level will be elderly. This suggests that they, like the Roma people will be one of the social groups that will endanger the national security in society in terms of highly increased economic resources required for a dignified life.
3. People with antisocial behavior and criminal behavior - The prevalence of the first risk group - the Roma people will increase the contingent of people with antisocial behavior and criminal behavior. In parallel, the rest of Bulgarian minority ethnic group will also complement it.

**RESPONDENTS** to the survey describes methods for long-term forecasting, they know. The great majority of the representatives of the Social Administration of all present social structures known The analytical methods (19.41%), expert methods (18.22%), the Commission's method (16.03%) and statistical methods (14,00 %). It is interesting to note that the following methods have been reported out by the representatives of Ministry of Labour and Social Policy, Social support agency and State Agency for Child Protection: Modeling (10.65%) Brainstorming (9,82%), SWOT-analysis (5.23%), analysis of trends (3.91%) and the scenario method (2.73%). None of the respondents does not indicate that he knew or was involved in the implementation of the Delphi method, which indicates that this technique is not used by the Bulgarian structures of the social sphere.

**IN** free form respondents answer if they know or have worked with long term forecasting Delphi method. About two-thirds of them briefly and emphatically says that they do not know this method (69.64%), while the remaining third respond as follows: they are familiar with it during his studies at university - (17.31%); method is mentioned during their participation workshops organized by various Non- governmental organizations - (10.80%) have information about it by others - (2.25%). On the one hand there is an obvious gap in the knowledge of the respondents in respect of research method, but on the other hand is satisfactory in Bulgarian universities which train future professionals in the social sphere is given at least a theoretical idea about it.

**ANOTHER** important task of the study was to find out whether the respondents would use Delphi method in their work - their answers contain positive attitudes are reflected in the fact that they would be working with a world emerged method (12.15%), if anyone train them (12.05%), and if it is beneficial for the system (9.12%).

The proposed content of this article gives an opportunity to be made explicit these summaries and conclusions:

1. To study the implementation of three-rounded Delphi Method has been followed methodology of classical (conventional) method Delphi in 7 stages, which include: preparation of the research team and the expert panel; adopt a plan for educational realize method, designing questionnaires, conducting itself Delphi and others., each stage has prepared a toolkit, according to leading methodology;
2. The end result of the study probed Delphi achieved complete - 100% consensus among experts suggests that future risk social groups in Bulgarian society in 15 years will be: separate minority groups, the elderly / pensioners, people with antisocial behavior and criminal behavior.
3. The analysis of the opinions of experts shows that they have no experience with Delphi method to identify problems or forecasting in the national security through sampling method, but felt themselves to be important to predict. This feeling was intensified in them even more with the thought of doing something that is done for the first time in Bulgaria. The panelists agreed that it is possible Delphi method to be successful applied in the social sphere, but after further sampling within a national framework and previously training the people who will applying it. After participating in the learning Delphi they would recommend it to their colleagues in the national security as a reliable method for long-term forecasting.
4. In order to confirm the results of the study probed Delphi method with additional research methods to carry out a sample survey study of the "responders persons": Opinion of experts in the social sphere for future risk social groups in Bulgarian society in 15 years have been implemented both goals the study: 1. Tested by the study results prior to the Delphi method to predict the risk groups in Bulgarian society after 30 years shows full match in identifying these risk groups: separate minority groups, persons with antisocial and criminal behavior, adults / seniors. 2. Establish a low, unsatisfactory level of knowledge of the Delphi method among respondents, but at the same time high readiness for its application in the social sphere; positive attitudes in the future to work with him.

IN conclusion, the research group found very accurate view of **T. Weaver** [28], which states that the Delphi technique is promising, but it makes it possible to think about the future more complicated than it would be. After sampling of the Delphi Method in Bulgaria research group joins this opinion.

## REFERENCES

1. **BOZHANOV, E., VUCHKOV, I., 1983:** STATISTICAL MODELING AND OPTIMIZATION OF MULTIVARIABLE OBJECTS, SOFIA
2. **ILIEVA, S., 2011:** DELPHI METHOD FOR PREDICTING THE FUTURE RISK GROUPS IN BULGARIAN SOCIETY, IN: THE FUTURE OF SOCIAL SERVICES IN BULGARIA. FUTUROLOGICAL FORECAST. COLL., SHUMEN
3. **ILIEVA, S., 2011:** DELPHI METHOD, SOFIA
4. **ILIEVA, S., 2012:** PERSPECTIVES FOR THE APPLICATION OF THE DELPHI METHOD IN THE SOCIAL SPHERE, SOFIA
5. **KATCHAUNOV, S., 1970:** SCIENTIFIC FORECASTING AND ITS IMPORTANCE IN MANAGING THE PUBLIC, SOFIA
6. **KATCHAUNOV, S., 1970:** THE SCIENTIFIC FORECASTING AND ITS IMPORTANCE FOR THE MANAGEMENT OF THE SOCIETY: MARXIST-LENINIST THEORY OF MANAGEMENT OF SOCIETY. IN ORDER TO ASSIST THE SYSTEM PARTICIPANTS OF PARTY EDUCATION, ISSUED BULGARIAN COMMUNIST PARTY, SOFIA

7. **KUSEV, I., 1997:** SOCIAL PROGNOSTIC, SOFIA
8. **MANOV, V., 2001:** PLANNING AND FORECASTING, SOFIA
9. **MIRKOVIC, K., 1973:** MODELING AND PREDICTION OF THE ECONOMIC PROCESSES, SOFIA
10. **MIHAYLOV, S.,** SAMPLE SURVEYS, IN: EMPIRICAL SURVEY, SOFIA, 1980
11. **MIHAYLOV, S., 1996:** DIRECT SURVEY, IN: ENCYCLOPEDIA OF SOCIOLOGY, BAS, BY ED. PROFF. STOYAN MIHAYLOV, SOFIA
12. **MOLHOV, M., 2004:** NON-STOCHASTIC SAMPLES - POSSIBILITIES FOR THEIR APPLICATION, C: EMPIRICAL SURVEY OF SOCIAL REALITY, SOFIA
13. **MORGOUNOV, E.V, 2011:** METHOD "FORESIGHT" AND ITS ROLE IN THE MANAGEMENT OF THE TECHNOLOGICAL DEVELOPMENT OF THE COUNTRY, THE HEAD OF THE MONOGRAPH "PROBLEMS OF DEVELOPMENT OF THE MARKET ECONOMY", MOSCOW, I
14. **MOROZOV, T., PIKULKIN, A., TIKHONOV, V.F., AND OTHERS, 2000:** FORECASTING IN MARKET CONDITIONS, MOSCOW
15. **NAYDENOV, N., 2002:** PLANNING AND FORECASTING
16. **PAVLOV, D., 1968:** SCIENTIFIC PREDICTION OF SOCIETY AND FUTUROLOGY, NEWSPAPER "WORKERS CASE", ISSUE. 93 / 2.IV
17. **STEFANOV, N., YAHIEL, N., 1970:** MANAGEMENT, MODELING, FORECASTING, ISSUED BULGARIAN COMMUNIST PARTY
18. **TSONEV, V.,** IN: ENCYCLOPEDIA OF SOCIOLOGY, BAS, ED. PROFF. STOYAN MIHAYLOV, SOFIA, P. 153-154, 1980
19. **TSONEV, V.,** IN: ENCYCLOPEDIA OF SOCIOLOGY, BAS, ED. PROFF. STOYAN MIHAYLOV, SOFIA, P. 155-156, SOFIA, 1996
20. **YANKOV, Y. 2006:** PROGNOSTICS. THEORETICAL AND METHODOLOGICAL PROBLEMS. (SECOND, REVISED EDITION), SOFIA
21. **YANKOV, Y., 1993:** PROGNOSTICS. THEORETICAL AND METHODOLOGICAL PROBLEMS. SOFIA
22. **ABELLA, A., 2008:** SOLDIERS OF REASON: THE RAND CORPORATION AND THE RISE OF THE AMERICAN EMPIRE, HOUGHTON MIFFLIN HARCOURT
23. **BROWN, B., 1968:** DELPHI PROCESS: A METHODOLOGY USED FOR THE ELICITATION OF OPINIONS OF EXPERTS, RAND, P-3925, SEPTEMBER
24. **CLIFFORD, P., 2008:** ED. RAND AND THE CITY: PART ONE, SANTA MONICA MIRROR, OCTOBER 27, 1999 - NOVEMBER 2, 1999. FIVE-PART SERIES INCLUDES: 1; 2; 3; 4; & 5, APRIL
25. **COLLINS, M.J.,** COLD WAR LABORATORY: RAND, THE AIR FORCE, AND THE AMERICAN STATE, 1945-1950, SMITHSONIAN INSTITUTION SCHOLARLY PRESS HARDCOVER
26. **DALKEY, N.C., 1969:** THE DELPHI METHOD: AN EXPERIMENTAL STUDY OF GROUP OPINION, RAND, RM-5888-PR, JUNE
27. **FOWLES, J., 1978:** HANDBOOK OF FUTURES RESEARCH. GREENWOOD PRESS: CONNECTICUT
28. **WEAVER, T.W., 1971:** THE DELPHI FORECASTING METHOD, PHI DELTA KAPPAN, 52(5)