

G.I.S PERSPECTIVES FOR SOCIAL SECURITY MANAGEMENT

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ABSTRACT

Lately, G.I.S techniques have been used for an increasing area of applications with more or less geographic implications. The paper proposes the finding of some useful applications in the management activity of the social security system. Insurances represent everything related to risk management. It is important to identify the riskier areas and which are the natural, human or economical factors that amplify risk. Following such an analysis one can take decisions concerning the risk level in some areas, improving sales, improving marketing or client activities. Also a localization of agents or clients is possible.

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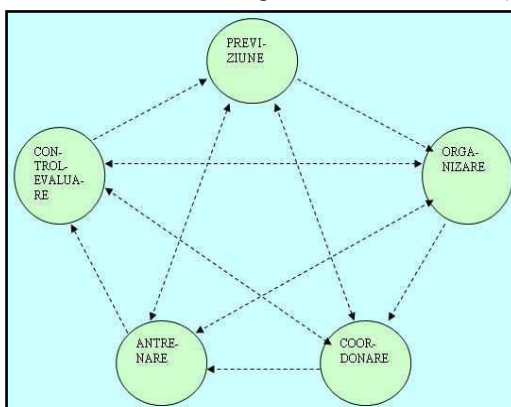
1. MANAGERIAL FEATURES IN THE FIELD OF SOCIAL SECURITY

Managerial processes, unlike execution processes, can be defined mainly by the fact that part of the workforce (the leading team of the organization) acts over the other part of the majority of the labor force (the subordinate personnel) through a variety of decisions and actions in order to determine the organizational objectives, as well as the resources and the means for the efficient realization of objectives.

The managerial processes have several principal components linked to the functions and attributes of leading (prevision, organization, coordination, training and control-evaluation). (Fig.1). These are the typical parts of the typical managerial process, which acts throughout all the social – economical processes, including here organizations irrespective of their characteristics.

In the actual conditions of the Romanian economy when economical agents are still faced with a series of major difficulties economical problems are priorities (especially, the efficiency) correlated with the social ones.

Fig.1. The interdependencies between the managerial functions



Almost half of the Romanians think that the economical situation of the country is the most important issues, that is double the percentage of the inhabitants of the old members of EU (22%). The prices are seen as the second largest problem, and therefore seen

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accordingly by 26% of the Romanians. The third issue is the pension problem, 22% of the citizens („România Liberă”, 14 July 2006). In this context, social security – key component of the social security system – gathers new dimensions.

On one hand it is necessary to underline the fact that social security systems are dynamic systems, due to the alterations suffered in time, of the constitutive factors (such as the present and foreseen demographic situation and the health state of the population) and on the other hand due to the mobilization of the political, economical and social context.

Political factors (political stability, ideology, geopolitical connections and institutions), economical factors (natural resources, labor, capital, infrastructure and technologies) and social factors (the social structure and dynamics, the conception on human nature, time and space, religion, language and the role of man and women in) have their own laws which results in a permanent search for compromises to eliminate the contradictions which exist among them.

The management of social security institutions means knowing each of the characteristics of the named factors and the relations existing among them, so that they can be included in a unitary mechanism meant to model the nature of the social security system either at national or international level.

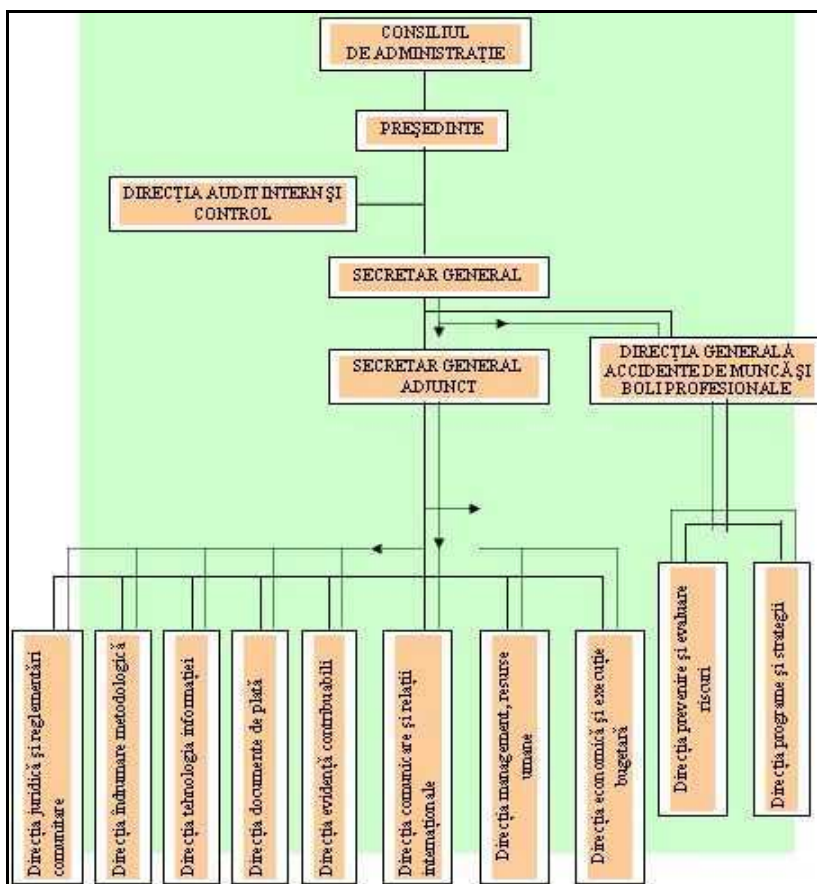


Fig.2 The structure of the National House for Pensions and Other Social Security benefits

The main institution responsible for the administration and management of the state social security system and for the social insurance system for work accidents and labor related illnesses or professional disorders is **CNPAS** (The National House for Pensions and Other Social Security Benefits), founded in 2000, based on Law no 19/2000. This institution is subordinated to **MMSSF** (The Ministry for Labor, Social Solidarity and Family). This institution enforces the law through a network of local and regional pension agencies (all of them juridical persons) (Fig.2).

Apart from those already mentioned there are other public institutions involved in the social security activity from Romania: The National Agency for Employment (ANOFM); Ministry of Health (MS) The Agency for Health Assurance (CNAS); The Ministry of Public Finance (MFP); The National Agency for Fiscal Administration (ANAF).

The Ministry for Labor, Social Solidarity and Family (MMSSF) is organized and functions as specialized organ of the public administration. It is subordinated to the Government; has juridical personality and has a role of synthesis for ensuring and coordinating the application of the governmental strategies and policies in the fields of: labor, social security, social protection and family.

In the exercise of its functions MMSSF has attributions in the following directions: Social policies; European affairs and external relations; the protection of Romanian citizens working abroad; social security and family policies; labor force; social partnership; salary incomes; social insurance and special legislation; work legislation; human resource management; economic-social resource management and investments; security and work health.

The main attributions of MMSSF, in the field of social security and of special legislation are listed below:

- creates policies and programs in collaboration with other ministries and organs of the central public administration, in the field of pensions and other social security benefits;
- has control over the implementation of policies and programs by the National House for Pensions and Other Social Security Benefits (CNPAS);
- creates the methodology for the application of legal provisions by deciding the right to pension, other social security benefits and benefits entitled by special legislation at the proposal of CNPAS;
- creates the fundamentals and promotes the budgetary project for the state social security system based on the proposals issued by CNPAS;
- creates the legislation needed for the creation of the institutional framework needed for the implementation and functioning of the private social system.

2. THE SPECIFIC OF A GIS DATABASE RELATED TO SOCIAL SECURITY

In the field of social security the majority of observations which could constitute the database are of quantitative nature: the number of insured persons, the number of persons who benefit from employment aids or other social aids, the monthly value of the different social contributions to the state, regional or local budgets etc. By analyzing such indicators one can gain data regarding the natural and social –geographical characteristics of certain areas of territory thus creating a classification of the risk areas.

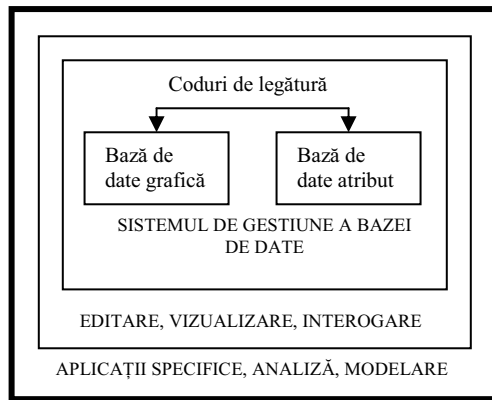


Fig. 3. The place of the database inside GIS

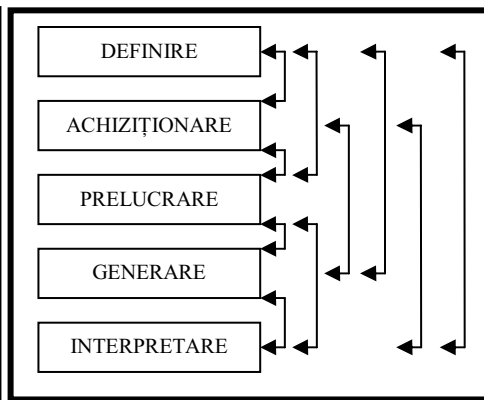


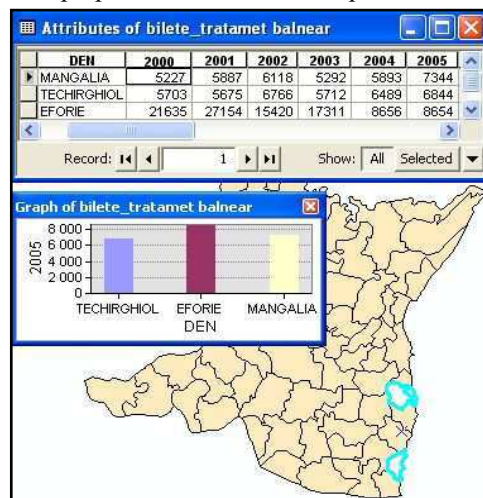
Fig.4. Feedbacks between the stages of GIS application

The role of GIS is to store information, to interpret information, to integrate information in a specific model, to create correlations between different types of information etc. GIS also creates the connection between the quantitative attributes and the spatial ones, by attributing to each quantitative value a set of spatial coordinate identifiers (Fig. 3). G.I.S applications and database analysis for the sanitary domain was realized, in Romania, to county level. (Muresan F. et al. , 2006).

The use of G.I.S supposes certain work stages: identifying the problem, the acquisition of the necessary data, the preparation of the data and the exploitation of all the connex information; the creation of reports and spatial scenarios; the interpretation of results and the proposal of the optimum solutions.

However in reality there are only a few cases when these steps are followed in a linear fashion. It is needed thus a coming back stage during the study to the previous stages (Fig. 4).

A few aiding questions (Haidu I. and Haidu C., 1998) which could be asked during the stages presented above refer to: a) the type and source of necessary data and b) methods of data preparation and result interpretation.



a) **The type and the source of the necessary data.** The possible questions are: What kind of data are needed to analyze and solve the problem? Where and which is the primary information needed for reaching the desired result? Regarding the data typology it must be pointed out that there are data variable in space (the number of insured people at county, local etc level) and data variable in time reported in relation to certain spatial parameters such as the total number of population, the number of active population, the young force labor and the future contributions etc.

Fig.5. An illustration of the spatial – temporal variability of data

As far as the source of information is concerned, in the field of social security the majority of the data are statistic in nature resulted after population surveys and questionnaires (the National Institute of Statistics); also the database of the social security institutions can be the most reliable source of information (CNPAS, ANOFM, MS, CNAS, MFP, ANAF).

An example of database that takes into account the double variability of the data is displayed in **fig.5**. The data refer to the number of tickets for the balneal treatment distributed through the state security system in the Romanian resorts (Mangalia, Techirghiol, Eforie) from Constanța county during 2000-2005.

b) Methods of data preparation and interpretation. The possible questions could be: *What procedures will be used for creating thematic layers and final maps?*

The most adequate methods for analysis must be used by using existing GIS extensions or by creating and integrating new ones which provide solutions for the problem in question. Here are a few examples: generating new attributes by querying the database, spatial uni-layer operations (the spatialization of the vectors of some indicators, density analysis), multiple spatial operations (vector overlay, matrix overlays, multi-criteria overlays etc).

3. POSSIBLE APPLICATIONS

The determination of some potential areas of applicability for GIS in the field of social security systems can be achieved by paying attention to some features: the identification (Which is the city with the most /least social security contracts); the tendency (Which changes related to the social security systems have occurred in the last ten years?); the causes (why has the number of pensioners has expanded in the last 15 years?); forecast (How will things look like in the next ... ?).

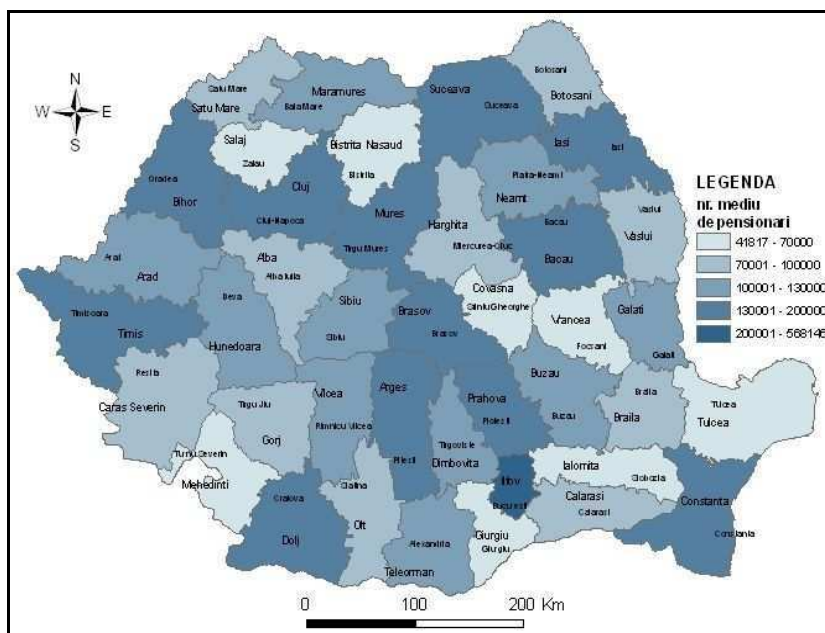


Fig.6 The mean number of social security pensioners at county level in 2005

In order to evaluate the risks in the area of social security systems of a city and in order to assume some decisions it is necessary to create some sets of information in the form of layers referring to the: degree of pollution, the source of pollution, the age of the population, the specific of the works engaged by the population, the work conditions etc. If one is interested to analyze the unemployment rate in a county an identification of the localities with the most unemployed persons is needed. Also the causes which have lead to a diminishing of the investments in a city must be taken into account.

By using the data offered by CNPAS and the National Institute of Statistics the mean number of retired people was displayed spatially ta county level in 2005 (Fig.6). Another example of analysis at county level is offered by Fig.7, where one can see the spatial value of the social security pension in the 2005. By using certain data series with a certain spatial sequence one can obtain layers which can reveal alterations of the analyzed indicators.

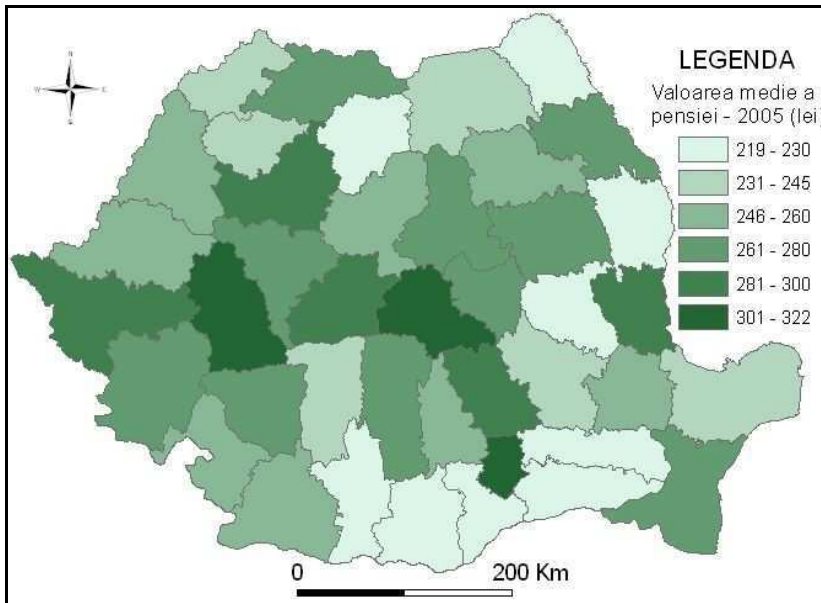


Fig.7. The mean distribution of the state social security pension value (lei/person) in 2005

4. CONCLUSIONS

In the social security management activity, GIS systems could play an important role in the process of data storage, offering thus the possibility of accessing the spatial side of the parameters in the area of insurances. Considering what we presented above and in accordance with the CNPAS organizational chart (Fig.1) there are a few sectors where GIS could be used: the technology of information department, the direction of tax payers evidence, the direction of risk prevention and evaluation.

One of the great advantages in using GIS consists in locating and identifying the observed indicators and factors which lead to a certain situation. In order to have a diversification of its applications it would be important to integrate in GIS the used equations in the insurance activities creating thus new extensions.

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