

*Full Length Research Paper*

# Empirical research on the internal audit into public hospitals from Romania

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This study employs a dual approach, in that it first considers a synthesis of the studies run by researchers in the field of internal audit within the public sector, ideas on this topic published into the professional literature, and regulations drawn up by national and international accounting regulators and accounting professional bodies. Secondly, it uses an empirical survey based on a questionnaire to get responses from public hospitals in Romania. All respondents consider that internal audit has its contribution to the improvement of public hospitals performance and it is a partner to their management. They consider the deficiencies identified by the internal audit within hospitals to be prevented in the future to a great extent, as well as the fact that the assessment of internal control and the elimination or diminution of unjustified expenses are the ways through which internal audit adds value to public hospitals. Nevertheless, it is reckoned that the absence of the internal audit function as a result of its conditioning by the number of hospital beds and the traditional role it plays in hospitals, imposes a resizing of the regulations and approaches into the field, in accordance with the existing realities, in order to contribute to the improvement of public hospitals performance in Romania.

**Key words:** Romania, public sector, public hospital, internal audit, performance.

## INTRODUCTION

The premise of running this empirical study was that of identifying to what extent internal audit improved the performance of public hospitals in Romania. The economic recession that Romania is facing at the moment generates disbalance at the public hospital level, materialized in limitation of the public resources, low quality of medical care, multiplication of risks and uncertainties, as well as the absence of performance. The implementation of the relatively recent function of internal audit into the public sector from Romania and its conditioning by number of beds owned by the public hospitals still shyly offers a traditional approach to internal audit. This research had as foundation, on the one hand, the approach of internal audit within the public sector upon the national and international literature, as well as, upon the regulations into the field, and on the other hand, the responses received on the questionnaires submitted to the

to the public hospital managers from Romania.

The research is structured as follows: (i) review of the national and international professional literature, (ii) presentation of the research methodology, (iii) presentation of arguments to support the results and analysis of the collected data and (iv) presentation of conclusions.

## APPROACHES OF THE INTERNAL AUDIT INTO THE PUBLIC SECTOR: LITERATURE REVIEW

The issue of the internal audit within the public sector has been one of the study objectives of the professional literature and practice. Carhill and Kincaid (1989) and Coupland (1993) consider that there are significant differences between the internal audit from the public sector and the one from the private sector in terms of the orientation framework where it operates and the area of its activities. Opposite to this information, Barrett (2002) asserts that the reforms of the public sector have diminished the differences between the two sectors, especially in respect of governance. The assertions

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concerning the differences between the internal audit into the public and private sectors are empirically validated by the survey performed for the internal auditors (mission managers), and members of the Institute of Internal Auditors from Australia and New Zealand. The results of this study have shown the following interferences and divergences:

- 1) Internal audit has a higher status into the public sector than the private sector entities. The departments of internal audit from the public sector tend to report to the executive manager or the second in command and they tend to have mostly permanent employees, in comparison with the entities of the private sector.
- 2) The activities of risk management and special projects cover less than 20% of the time of internal audit both into the public and private sectors.
- 3) In the private sector, 50% of the internal audit functions are involved into the financial risk management, as compared to 33% into the public sector.
- 4) In both sectors, approximately 90% of the internal audit functions are involved actively in the operational risk management, 65% in strategic risk management, over 30% in environment risk management, and 20% in other risk management fields (special projects, health and security, informational technology and fraud).
- 5) The elements interfering with the audit of the public and private sectors are: the lining of the fields covered by audit, synchronizing the working programme, and external auditor's access to all the reports of internal audit.

Investigating the role of internal audit in six organizations from Italy, Arena et al. (2006) concluded that its role is explained by the nature of institutional pressures supported by the organizations. Similarly, Goodwin (2004) has shown the existence of differences concerning the characteristics of the internal audit into the public and private sectors from Australia and New Zealand. Azad (1994) and Rezaee et al. (1999), quoted by Zakaria et al. (2006), did a research on the public internal audit in the public institutions of higher education. By the survey performed in the public universities, Azad pointed out the fact that there are no significant differences concerning the area of internal audit between the public universities and the private ones. The results of the research run by Rezaee et al. (1999) have shown that respondents perceive as most important the traditional roles of conformity audit (that is, the audit regarding financial fraud and the audit of financial reporting), in comparison with the proactive role of the internal auditors in participating, together with the managers, in the decisional process of universities.

Zakaria et al. (2006) appraise that the internal audit function is a component of the corporate governance and it has an important role in monitoring the financial reporting systems of the internal control system of higher educational institutions. By their research, Gramling and

Myers (2006) pointed out the role of internal audit in the entity's process of risk management. The results of the study, assessed on a scale from 1 to 5, in terms of the internal audit responsibility into the risk management process, are as follows: (i) It brings insurances into the risk management process (-3.10), (ii) it brings insurances that risks are correctly evaluated (-3.00), (iii) it assesses the risk management process of the entity (-3.17), and (iv) it reviews the management of the main risks (-3.19). The identification of the internal audit roles in the public sector was circumscribed to the studies done by Ernst and Young (2008) and Spanhove et al. (2008). The results of Ernst and Young's (2008) research into the public sector entities all over the world point out that the internal audit responsibilities comprise the following:

- i) Assessment of internal control belongs systematically to the internal audit in proportion of 47% and frequently in proportion of 32%.
- ii) Identification and evaluation of the areas most sensitive to risks are systematically subscribed to the internal audit missions in proportion of 40% and frequently, in proportion of 17%.
- iii) Testing the effectiveness of procedures belongs to internal audit systematically (40%) and frequently (30%).
- iv) The audit of financial information and one of the information systems belongs to the missions of public internal audit (26%), respectively (25%), systematically (42%) and frequently (38%).
- v) The audit of the subordinate entities is the responsibility of internal audit in proportion of 13% systematically and 31% frequently.
- vi) Drawing up the manuals of procedures falls on the internal audit in proportion of 5% systematically and in proportion of 26% frequently.
- vii) Creation of internal control and assessment of public policies are frequently ascribed to the missions of internal audit (6 and 21%).

The survey performed by Spanhove et al. (2008) proved the traditional role of internal audit in the public sector from Belgium. The results of the survey show, on a scale from 1 to 5, the importance of the activities circumscribed to the internal audit function: risks and control systems (4.87), process reengineering (4.22), activities related to the public sector (4.09), assessment of performance (3.78), finance and accounting (3.52), legal problems (3.32), IT (3.22), management of change and human resources management (3.00) and health, security and environment (2.26). Macarie (2009) conducted an empirical research based on questionnaires and gathered responses from 18 participants in a lecture of internal audit organized by the Regional Center of Permanent Training for the Local Public Administration of Cluj-Napoca. The results were as follow:

- a) All respondents consider internal audit as a new form of

control.

b) Most of the respondents consider that there is a subordinate relationship between the internal audit and the managing board of the entity (90%), while an insignificant part (10%) considers that there is a counselling relationship among the management.

c) About 75% of the respondents consider that the information in the audit report are intended for the financial-accounting departments, while only 25% of them consider that the information is useful for the management.

tefănescu et al. (2010) approached internal audit, into the public sector, from the predictive perspective. In this respect, the authors propose the creation of a database at each public sector's entity level including information related to the audit missions concerning: the objectives of the mission, the field, the audited activities, the opposable risks, the risk factors, risk weighting and assessment levels, as well as the information from the audit reports. This approach is the interface between the future audit mission and the entity's management, and it emphasizes the dualist quality given to the internal audit (creator of the added value and partner of the management of the public sector's entity). The development of internal audit into the public sector was the main topic of the Consultative Forum regarding the Internal Audit, organized by the World Bank and the Institute of Auditors, in Kenya, in March 2004 (Nordin, 2005).

This forum gathered fifty-two interested factors from Kenya, Uganda, Malawi and Ethiopia. The participants to the forum identified the need of major changes into the internal control and the audit systems in order to improve the financial public management, delivery of services and to take measures of eradicating poverty in African countries. Prior to the forum, the participants and relevant affiliates with the Institute of Auditors filled in a questionnaire concerning the current status and long term perspective of the internal audit in those countries. The results showed the following findings:

i) The most powerful supporters of an effective internal audit function are the auditors, professional accountants, and at the same time, the finance ministries and the associated ministries.

ii) The primary functions of internal audit were identified as, the assurance of compliance, in the first place, and secondly, the accuracy of transactions. Some of the internal auditors spend up to 75% of their time with the pre-audit of transactions. In addition, the recommendations of the internal audit are treated very different: in some countries, up to 75% of the recommendations are implemented, while in others, less than 25% generate changes.

iii) The improvement of internal audit effectiveness determines the increase of effectiveness of expenses both into public and private sectors. The respondents forecast the orientation towards the review of the management

procedures in order to increase efficiency and effectiveness, but they consider it a long term change.

The study of the approaches of internal audit into the public sector points out its various faces, that is, the need of the internal audit function in the public sector's entities, as well as its traditional role, focused mainly on the assesment of internal control and not on the process of risk management and corporate governance.

### **Internal audit into public hospitals from Romania**

The concept of internal audit into the context of the process of accession to the European Union and the globalization of economies took shape in Romania in 1999. The attempts of the national regulators to originally define the concept of internal audit have not met the international requirements. Therefore, the definition of internal audit given by IIA is found at the national level through the assimilation of the International Standards of Internal Audit, as the national regulations of internal audit are applicable to the economic entities whose annual financial statements are referred to in the financial audit. In this respect, the internal audit is defined as an independent and objective activity that gives assurance to an entity of the control on operations, and which guides the entity to improve its operations and contributes to value addition. The role of the internal audit is to support the entity in achieving its objectives by evaluating, through a systematic and methodological approach, its process of risk management, control and governance of the organization, and by making proposals to consolidate their effectiveness. In 2002, the deficiencies of the internal control and their negative impact on the performance of the public sector entities were the premises of introducing the concept of internal audit into the public sector, too, under the name of public internal audit.

In terms of the national regulations, the public internal audit is functionally independent and is an objective activity which offers assurance and counselling to the managing board with respect to a good administration of public revenues and expenses, thereby improving the activities of the public entity. It helps the public entity to achieve its objectives through a systematic and methodological approach that evaluates and improves the efficiency and effectiveness of the managing system based on risk management, control and administrative process (Ministry of Public Finances, Law no. 672/2002). From the scope's point of view, the public internal audit comprises: the financial activities or the activities with financial implications run by the public entity from the moment of concluding the agreements to the use of funds by the final beneficiaries, including the funds derived from external assistance; the setting up of public revenues, that is, the certification and establishment of the debt securities, as well as the facilities granted at their disposal; the management of public patrimony, as well as

the sale, pledge, concession or rent of goods belonging to the private/public domain of the state or the administrative-territorial units; and the systems of financial management and control, including the accounting and related informatic systems.

Although the healthcare and the public hospitals implicitly fill up a special place within the public sector, due to the complexity of their activity, heterogeneousness of the delivered services and high consumption of resources, the national regulators do not approach exhaustively internal audit into public hospitals, but only the condition of organizing and functioning of the public internal audit is explicitly presented. Thus, the hospitals with more than four hundred beds have to organize a functional department of audit, and for the hospitals with less than four hundred beds, the internal audit will be conducted by the deconcentrated structure of the Ministry of Public Healthcare (Ministry of Healthcare, Law no.95/200).

## RESEARCH METHODOLOGY

The objective of this research is to investigate Romanian hospital managers' opinion regarding the manner of perceiving the role of internal audit. In this respect, in order to perform the empirical study, the positive accounting research was used as the scientific research methodology. This implies that the research methodology covers the following stages:

1. Drawing up the research hypotheses.
2. Running the empirical observation process.
  - a. Drawing up questionnaires comprising dependent (hypotheses which must be shown) and independent variables (concerning the respondent's age, studies or sex, type and size of the enterprise, etc.).
  - b. Selecting the population to be investigated (managers of public hospitals from Romania).
  - c. Choosing the representative sample.
  - d. Processing the information. The information will be processed with a support package of software applications. There will be performed representative tests and, in accordance with the obtained values, the hypothesis will be admitted or rejected.
3. Confirmation or invalidation of hypothesis.

Particularly, this research hypotheses comprise the following:

- I<sub>1</sub>: The extent to which the audit function is covered in hospitals depends on the type of hospital.
- I<sub>2</sub>: There is a correlation between the respondents' opinion regarding the value added to the institution by the internal audit and the respondents' personal information.
- I<sub>3</sub>: There is a correlation between the respondents' opinion regarding the effect of the type of recommendations given by the hospital's internal audit and the respondents' personal information.
- I<sub>4</sub>: There is a correlation between the respondents' opinion regarding the future prevention of the deficiencies identified by the internal audit within the hospital and the respondents' personal information.
- I<sub>5</sub>: There is a correlation between the respondents' opinion regarding the role of internal audit within the hospital and the respondents' personal information.

In order to test the hypotheses, the empirical research was conducted in the following stages:

**Stage 1 (Preparation of questionnaire):** The questionnaire was made to ask for relevant information about the investigated entity, by close questions addressed to the public hospital managers so that they could answer them fast and easy. The size of the questionnaire was considered in accordance with the difficulty of obtaining an answer.

**Stage 2 (Choosing the representative sample):** After the realization of the questionnaire, the sample to be analyzed was selected.

**Stage 3 (Submission of questionnaire):** At this stage, the questionnaire was sent to all the managers of public hospitals accompanied by the author's letter communicating the research objectives and the possibilities of giving back the completed questionnaire easily and fast.

**Stage 4 (Processing the questionnaire):** At this stage, having collected the answers, the questionnaire was processed. First, a working slip was drawn up where the answers were gathered; next, the data were processed with the help of a statistical software.

**Stage 5 (Analysis of results):** Practically, a questionnaire (Annex 1), comprising 10 questions, was drawn up. Out of them, 5 questions were independent variables (the locality where the hospital is situated, the category of hospital where the respondents are employed, their age and sex, and the respondents' seniority within the healthcare system and in a managing position. A description of the independent variables can be seen in Tables 1 and 2.

Five questions were dependent variables (questions 3 to 7). During the period of July to August 2010, 280 questionnaires were sent by e-mail to public hospitals from the country which had an e-mail address. The received e-mails covered all the regions of the country. In the first stage of the research, the response rate of the chosen sample was low (under 40 responses); therefore, each hospital manager of the chosen sample was phoned and asked to answer the questions. Although they were given assurances that their answers would remain confidential, at the end, there were only 70 questionnaires collected, out of which only 69 could be used in this study.

After collecting the questionnaires, the given responses were processed with the help of a statistical software. To check the eventual correlations, the Chi test, which is also called Chi-square ( $\chi^2$ ), was used. In order to notice if there is any correlation between the independent and dependent variables, the Chi-square ( $\chi^2$ ) test was chosen. This method tests a null hypothesis. A null hypothesis starts from the premise that two criteria of classification are independent. If two criteria of classification are not independent, then, there is an association between them. Hi-square is calculated by the difference between each observed and theoretical frequency for each possible result, calculating their square, dividing each of them in the theoretical frequency and summing up the results:

$$\chi^2 = \sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i}$$

where:  $O_i$  = observed frequency;  $E_i$  = an expected frequency (theoretical), involved in the null hypothesis.

In this research, the Hi-square test was used in order to test the independence, while the Statistical software was used to calculate  $\chi^2$ . On the other hand, the critical value from the statistical table was determined, considering the value of the freedom degree (df) and the probability (p). The statistical meaning (p level) of the result is an estimated value of the "truth" degree (in terms of "representative population"). The level of significant probability is  $p = 0.05$ . The value of p level is a decreasing indicator of the result's safety. The

**Table 1.** Information about the institution.

Independent variable	Value	Observation
Hospital category		
A	Institute	6
B	Emergency hospital	12
C	Mono-speciality hospital	13
D	County hospital	0
E	Chronic disease hospital	7
F	Other type of unit with beds	31
Total		69

**Table 2.** Information about the respondents.

Independent variable	Value	Observation
Age	A 33 B 34	67
Seniority within the healthcare system	A 37 B 30	67
Seniority into a managing position	A 32 B 30	62
Respondent's sex	M 26 F 43	69

higher the p level is, the less probable the fact that the relationship between the variables in the sample could be a viable indicator of the relationship between the related variables within the studied population. If  $\chi^2$  is equal or higher than  $\chi^2$  critical (0.05), the null hypothesis ( $H_0$ ) is rejected. Otherwise, the null hypothesis is accepted.

## RESEARCH RESULTS AND DISCUSSION

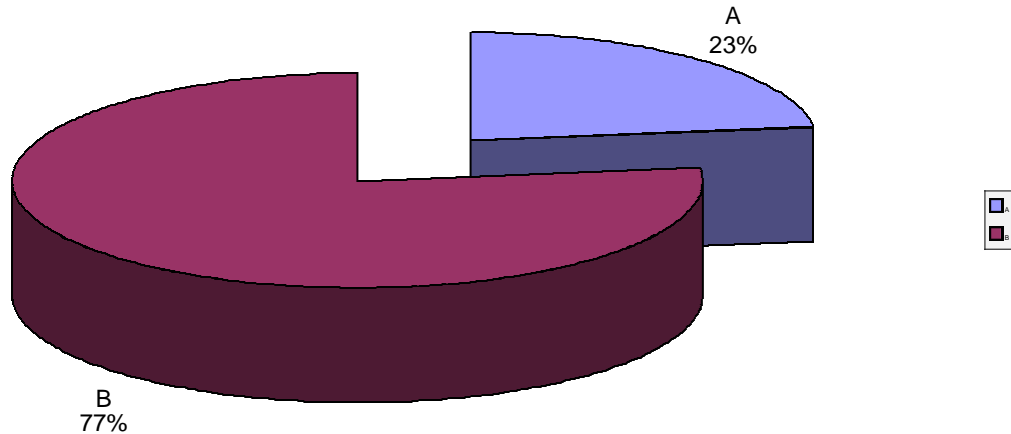
### Applying the aforementioned methodology has led to the following findings:

$I_1$ : The extent to which the audit function is covered in hospitals depends on the type of hospital. In Romania, the existence of the internal auditor's function in public hospitals is a requirement imposed only for the hospitals which hold more than four hundred beds. For this research hypothesis, question number 3 (considering the extent to which the audit function is covered in Romania) was asked, and it had the following responses as choices: A - Yes and B - No. The analysis of the received answers showed the fact that not all hospitals have the audit function covered (Figure 1). Following the responses received from the respondents, it was observed that the Romanian public hospitals function of internal auditor is covered within less than one-fourth of the hospitals included in this sample. An explanation could be that, due to the financial crisis, the jobs which were to be entered for competition in 2010, which was the year of the survey, were blocked. Moreover, to further test the existing correlations between the degree of covering the audit function and the type of hospital, there was a validation of the following correlation.

### Existing correlation between the coverage of the audit function in public hospitals and the category where the hospital is situated

Considering the observations, the distribution of responses is given in Table 3 and considering the application of  $\chi^2$  test, the obtained values are given in Table 4. It was noticed that the obtained significance threshold (p) has a lower value than 0.05 in the case of  $\chi^2$  test, meaning that, from a statistical point of view, the obtained correlation is significant. Graphically, the evolution of variables is given in Figure 2. Considering the graph analysis, the existence of a correlation between the category of hospital and the extent to which the audit function is covered can be observed. Thus, the public hospitals that enter the category called institute (A) or Emergency hospital (B) do not register major differences in terms of covering the audit function, being 50% in both cases (for example, in case A, the ratio between the respondents who have chosen the answer Yes and those who have chosen No was 3:3, and in case B, it was 6:6). The hospitals from C and E categories have an extent of non-coverage higher than 50%, although the highest disbalance is registered in F category (other types of unit with beds), where the non-coverage of the internal auditor's function is a fact that represents almost a "normality", while the ratio regarding the number of hospitals where this function is non-covered and those where the function is covered being 28:3.

In reviewing the data, it has been noticed that the value  $\chi^2$  is lower than 0.5, what statistically means that there is a correlation between the two variables. Therefore, the null hypothesis  $H_0$ : The extent to which the audit function



**Figure 1.** Coverage of the audit function in hospitals.

**Table 3.** The distribution of the answers.

2-way summary table: Observed frequencies (CHESTIONARE.sta)						
Marked cells have counts > 1						
	I 2	I 2	I 2	I 2	I 2	Row total
I 14	B	C	F	E	A	
DA	6	3	3	1	3	16
NU	6	9	28	6	3	52
Total	12	12	31	7	6	68

**Table 4.** Chi-square values.

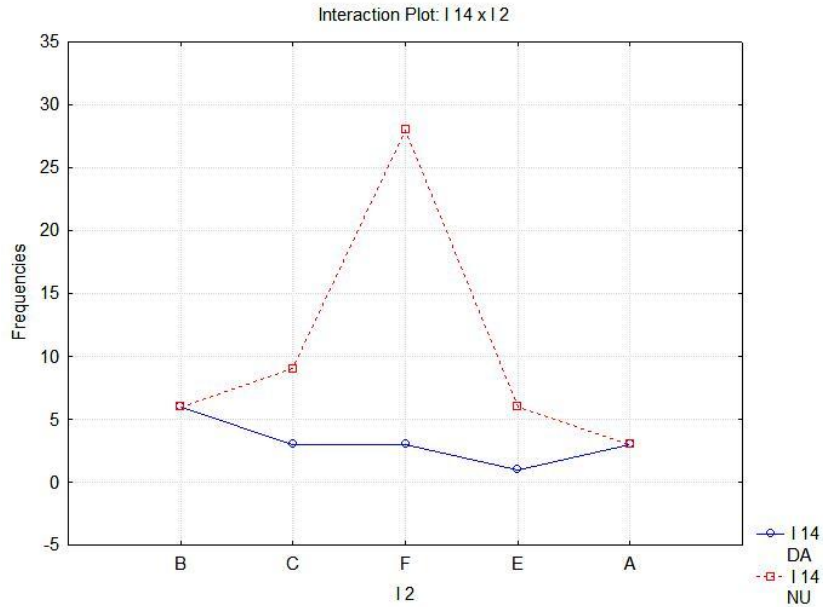
Statistic	Statistics: I 14(2) × I 2(5) (CHESTIONARE.sta)		
	X <sup>2</sup>	df	p
Pearson X <sup>2</sup>	10,66229	df=4	p=0.03064
M-L X <sup>2</sup>	10,29781	df=4	p=0.03571

**Table 5.** Dependent variables.

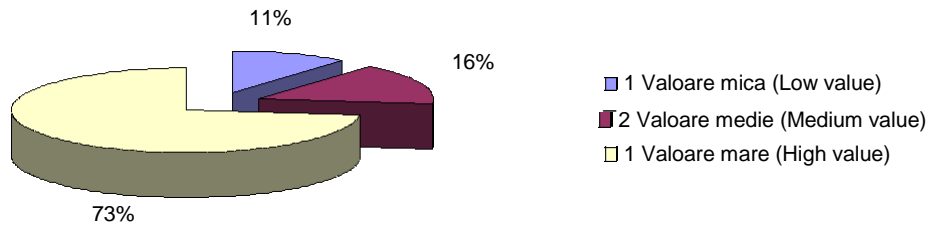
Q: 3a	Value added by internal audit through the agency of internal control
Q: 3b	Value added by internal audit through the agency of risk management
Q: 3c	Value added by internal audit through the agency of corporate governance

is covered in hospitals does not depend on the type of hospital is rejected, while hypotheses I<sub>1</sub>: The extent to which the audit function is covered in hospitals depends on the type of hospital, and I<sub>2</sub>: There is a correlation between the respondents' opinion regarding the value added to the institution by the internal audit and the respondents' personal information, are validated. To test these hypotheses, the following dependent variables have been taken into account (Table 5). The interpretation of results has been done in a dual manner; on the one hand, the creation of a global view on the way the

hospital managers assign a role to the three directions of the internal audit under investigation has been considered, and on the other hand, the existence of any possible correlation given by the correspondence between the dependent and independent variables has been tested. To test these correlations, the answer chosen for the dependent variable was set up in accordance with the score given by respondents, following the directions existing in the questionnaire: 1 - Low value; 2 - Medium value and 3 - High value. In accordance with the answers received, the situation will be subsequently



**Figure 2.** Correlation between the coverage of the audit function in public hospitals and the category where the hospital is situated.



**Figure 3.** Value added by the internal audit to the institution through the agency of internal control.

buttressed further.

**The analysis of responses concerning the respondents' opinion regarding the value added to the public hospital by the internal audit through the agency of internal control**

Out of the three variables considered as manners through which internal audit adds value to the entity (Figure 3), the internal control has been considered by most of the respondents as the instrument that can add the highest value to the institution where it is exercised. This aspect could happen due to the fact that, in the Romanian economic environment, the internal control has the highest age, being also practiced during the communist period (prior to 1989), as a way of checking.

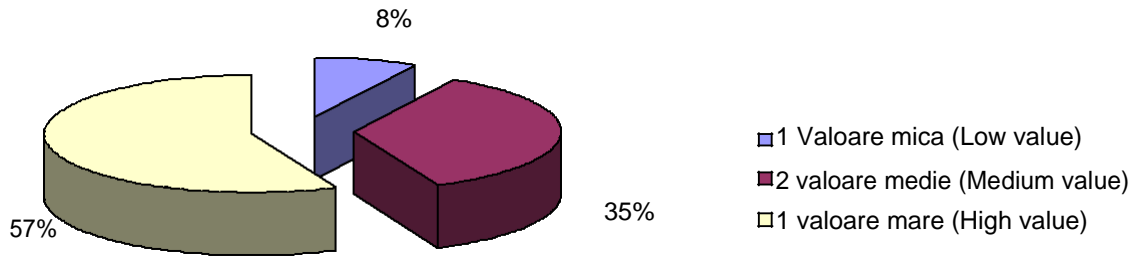
Thus, out of the total of only 37 respondents for this question (if the hospital did not have the audit function, some of the respondents would not answer this question), a significant percentage (73%) has considered this

function an important generator of value added (on their own scale of values, they perceived this value as high). The remaining part of the respondents has chosen the medium or moderate variant, one of them saying the internal audit do not add value at all (mentioned and included in the questionnaire). The direction of answers to this question has been the same, regardless of the choice of the independent variable to test the possible correlations, that is, there are no significant differences of opinion at the level of the categories of respondents or at the level of the categories of hospitals where the respondents are working.

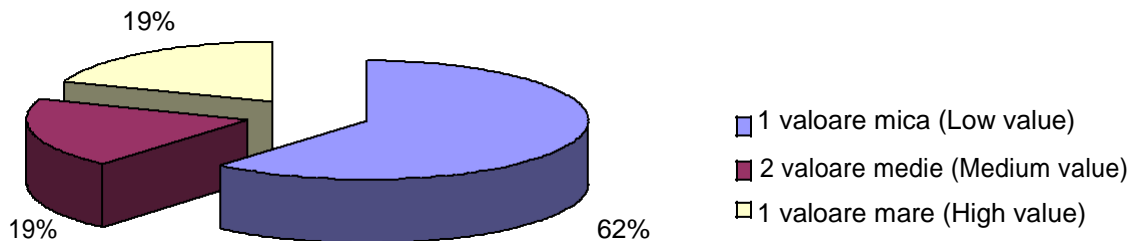
**Analysis of answers concerning the respondents' opinion regarding the value added to the hospital by the internal audit through the agency of risk management**

Risk management is another manner of adding value to an institution by internal audit, and it was proposed to





**Figure 4.** Value added by the internal audit to the institution through the agency of risk management.



**Figure 5.** Value added by the internal audit to the institution through the agency of corporate governance.

respondents. The number of respondents has been equal to that from the previous situation (37), the reasons being similar. The respondents' view in this case was given in Figure 4. This time, respondents in lower percentage (57% as compared to 73% in the case of internal control), have considered risk management a lever through which internal audit can increase the value added for the institution. The explanation could be tied to the fact that this concept is much newer in the economic environment of Romania (emerged after the Revolution from 1989 that led to the fall of the communist government) and it is possible for the hospital managers not to know it so well as in the previous case.

Similarly to the prior case, the answers have been the same. Their responses have not depended on any of the independent variables used for testing the possible correlations, and this means that there are no significant differences of opinion at the level of the categories of respondents or at the level of the categories of hospitals where respondents are working.

#### **Analysis of answers concerning the respondents' opinion regarding the value added to hospital by the internal audit through the agency of corporate governance**

This time, the answer rate was lower than the two prior cases (31 answers as opposed to 37). A possible explanation could be the fact that this concept is relatively new at international level, and it has been operating for several years in the economic environment of Romania;

therefore, it is not known by all respondents. The weighting of the respondents' answers is given in Figure 5. Considering the graph analysis, an inversion in comparison with the two previous cases can be observed. It might be due to the fact that this instrument is seldom known and used, and the value given by respondents is mostly (62%) a low one. Nevertheless, the existence of this association was noticed while testing the link between the response to this question and the independent variables.

#### **The existing correlation between the respondents' opinion regarding the value added by the corporate governance and the respondent's seniority in the healthcare system**

This was an open question. In order to delimit the interspace and the application of statistical tests, the study resorted to the classification of answers into two interspaces, in terms of the sample mean: 15.54. The answer demarcation on interspaces is as follows:  $A < 15.54$  and  $B > 15.54$ . Following the observations, the distribution of answers is given in Table 6, and considering the  $\chi^2$  test application, the obtained values are given in Table 7. It was noticed that the obtained significance threshold ( $p$ ) has a value lower than 0.05, in case of  $\chi^2$  test, that is, from the statistical point of view, the correlation that has been obtained is significant. The graph (Figure 6) shows the evolution of variables. Although respondents have predominantly chosen to give low importance to corporate governance as a factor generating added value for

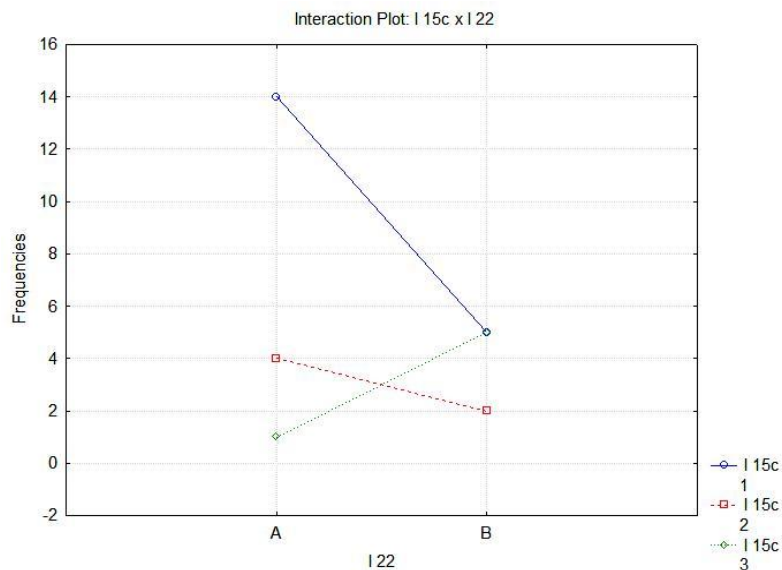


**Table 6.** The distribution of the answers.

2-Way summary table: Observed frequencies (CHESTIONARE.sta)			
Marked cells have counts > 1			
I 15 c	I 2 A	I 2 B	Row totals
1	14	5	19
2	4	2	6
2	1	5	6
Total	19	12	31

**Table 7.** Chi-square values.

Statistic	Statistics: I 15c(3) x I 22(2) (CHESTIONARE.sta)		
	X <sup>2</sup>	df	p
Pearson X <sup>2</sup>	6,339066	df=2	p=0.0420
M-L X <sup>2</sup>	6,435164	df=2	p=0.0400

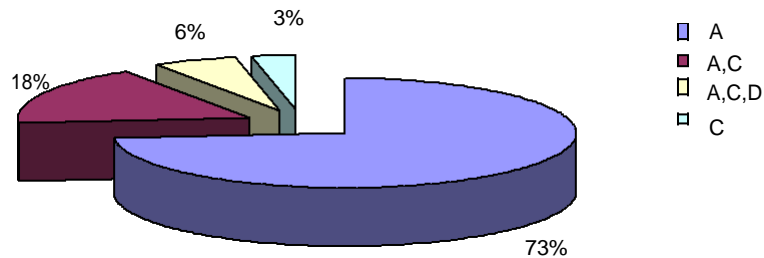


**Figure 6.** Correlation between the respondents' opinion regarding the value added by the corporate governance and the respondent's seniority in the healthcare system.

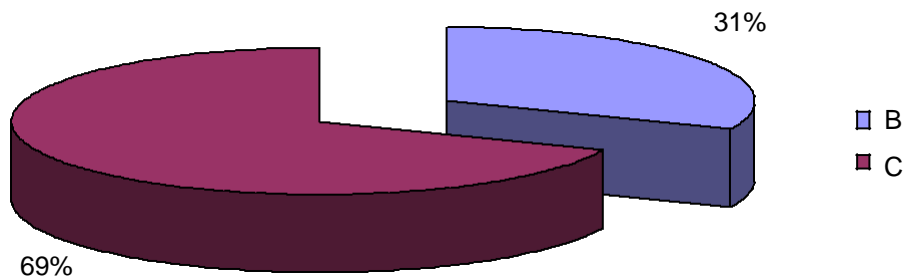
generating added value for the entity, it is interesting that the hospital managers having a seniority in the health-care system higher than the sample mean (15.54 years) perceive corporate governance as a factor generating added value more than their opposites who are less experienced (the maximum score was chosen by 5 respondents out of the 12 belonging to the category of those with higher experience than the mean, in comparison to 1 respondent out of the 19 belonging to the category of respondents with lower experience in management).

Analyzing the specific correlations related to the

particular situations identified at the hospital level, a significant specific correlation in terms of statistics can be seen. Therefore, the null Hypothesis  $H_{20}$ , according to which there is no correlation between the respondents' opinion concerning the value added by the audit to the entity and the respondents' personal information, has been rejected. This means that between the two variables, there is an association and so Hypothesis  $H_2$  (There is a correlation between the respondents opinion regarding the value added to the institution by the internal audit and the respondents' personal information) is



**Figure 7.** Manner in which the internal audit adds value to the institution.



**Figure 8.** Percentage of future prevention of the deficiencies identified by the internal audit.

empirically validated.

In order to test Hypothesis I3 (There is a correlation between the respondents opinion regarding the effect of the type of recommendations given by the hospital's internal audit and the respondents' personal information), answers given by the respondents to question 5 were analyzed and the possible answers were given in Figure 7.

Analyzing the answers to this question, it was noticed that 97% of the respondents had taken into account the diminution or elimination of the unjustified expenses at the moment when they gave their opinion on the value that can be added to an entity by the internal audit. Out of these, 73% considered that the diminution or elimination of expenses is the only dimension generating value added. An insignificant percentage of respondents (3%) consider that only the identification of new revenue sources by the internal audit can generate value added. Similarly to the previous situations, the trend of answers to this question has been the same. The choices made by respondents have not depended on any of the independent variables used for testing the possible correlations, and this means that there are no significant differences of opinion at the level of categories of respondents or at the level of categories of hospitals where the respondents are working.

Analyzing the specific correlations related to the particular situations identified at the hospital level, it can be noticed that there is no significant association in terms

of statistics. Therefore, the null hypothesis  $I3_0$ , according to which there is no correlation between the respondents' opinion regarding the effect of the type of recommendations given by the hospital's internal auditor and the respondents' personal information, was accepted, meaning that, between the two variables, there is no association. So, hypotheses I3: There is a correlation between the respondents' opinion regarding the effect of the type of recommendations given by the hospital's internal audit and the respondents' personal information, and I4: There is a correlation between the respondents' opinion regarding the future prevention of the deficiencies identified by the internal audit within the hospital and the respondents' personal information, are not empirically validated. In order to test these hypotheses, the same independent variables (age, sex, and respondent's seniority in the healthcare system and in a managing position, respectively) as for the case of hypothesis I2 were taken into account, while the dependent variables were as follow: A - 0%; B < 50% and C > 50% < 100% (Figure 8).

Processing and interpretation of the answers collected from respondents show the fact that none of the respondents think that the degree of future prevention of the deficiencies identified by the auditor is zero. On the contrary, a significant number of respondents (69%) think that their prevention is higher than 50%. Moreover, testing the link between the response to this question and the independent variables, the existence of the association between them was noticed.

**Table 8.** Dependent variables

A	Diminution or elimination of unjustified expenses
C	Identification of new sources of revenues
D	Identification of the alternatives to clear the pending debts

**Table 9.** The distribution of the answers.

Statistics: I 15c(3) x I 22(2) (CHESTIONARE.sta)			
I 17	I 21 B	I 21 A	Row total
C	12	12	24
B	2	9	11
Totals	14	21	35

**The existing correlation between the respondents' opinion regarding the future prevention of the deficiencies identified by the internal audit within the hospital and the age of respondents**

The question concerning the respondents' age was an open one. To delimitate the interspaces and the application of statistical tests, we have resorted to the classification of responses on two interspaces, in accordance with the sample mean: 45.99. The demarcation of answers on the interspaces is as follows: A < 45.99 and B > 45.99. Considering the observations, the distribution of responses is given in Table 9. Following the application of  $\chi^2$  test, the obtained values are given in Table

10. It has been noticed that the obtained significance threshold (p) has a lower value than 0.05, in the case of  $\chi^2$  test, meaning that, from the statistical point of view, the obtained correlation is significant. Graphically, the evolution of variables is given in Figure 9.

The analysis of answers on the categories of age shows the different opinions of the respondents who believe that the preventive role of internal audit in respect of the deficiencies identified is lower than 50%. Thus, the respondents having a age that is lower than the mean of the sample believe this is in a proportion that is higher than the persons having a age that is higher than the sample mean (the ratio is 9 to 2).

**The existing correlation between the respondents' opinion regarding the future prevention of the deficiencies identified by the internal audit within the hospital and the respondents' sex**

Considering the observations, the distribution of answers is given in Table 11. Following the application of  $\chi^2$  test, the obtained values are given in Table 12. It is noticed that the obtained significance threshold (p) has a lower value than 0.05, in the case of  $\chi^2$  test, meaning that, from

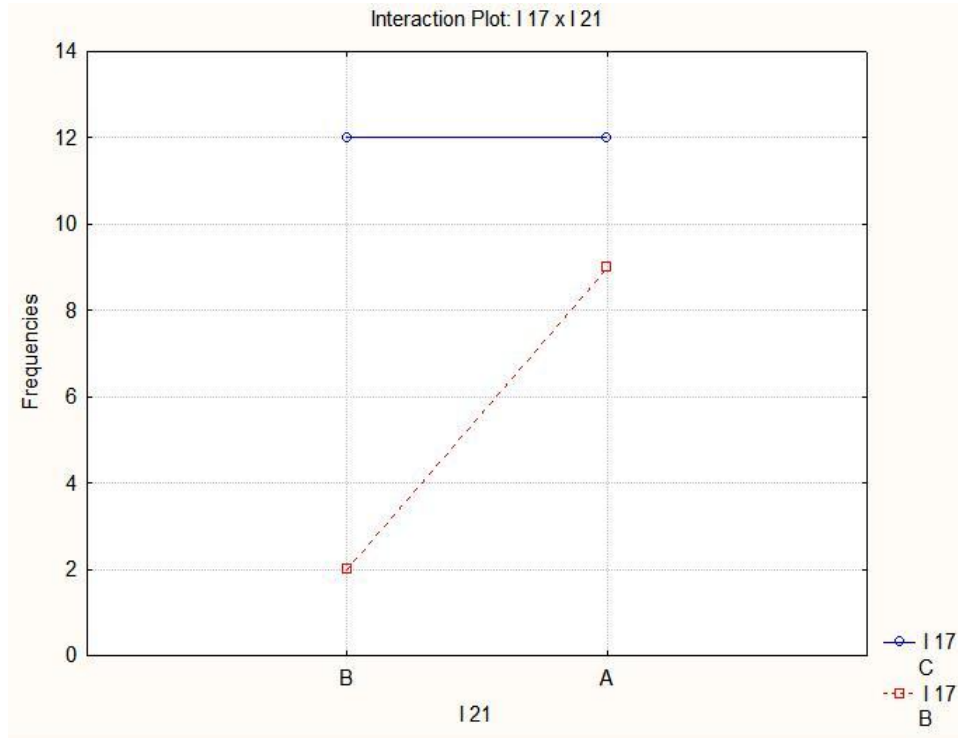
the statistical point of view, the obtained correlation is significant. Graphically, the evolution of variables is given in Figure 10. Analyzing the manner in which respondents consider that the deficiencies identified by the internal audit can be prevented in the future, a difference of attitude in respect of the female respondents' view as compared to that of the male respondents was observed. Thus, men are mostly convinced that the prevention of the deficiencies identified by the internal auditors can be done in the future in a proportion over 50% (the ratio between those who have such an opinion and those who believe the opposite is 14:2). Unlike them, the women respondents are more pessimistic, that is, a higher number of the persons believe that the deficiencies identified by the internal audit can be prevented in future in a proportion below 50% (9 respondents out of 12, in comparison to 2 out of 16, in the case of men).

Analyzing the specific correlations related to the particular situations identified at the hospital level, it can be noticed that there is a significant association in terms of statistics. Therefore, the null hypothesis I4<sub>0</sub>, according to which there is no correlation between the respondents' opinion regarding the future prevention of the deficiencies identified by the internal audit within the hospital and the respondents' personal information, was rejected, meaning that, between the two variables there was an association. So, hypotheses I4: There is a correlation between the respondents' opinion regarding the future prevention of the deficiencies identified by the internal audit within the hospital and the respondents' personal information, and I5: There is a correlation between the respondents' opinion regarding the role of internal audit within the hospital and the respondents' personal information are empirically validated. In order to test these hypotheses, the answers given by respondents to question 7 were analyzed, and the response variables are given in Table 13.

Observing the distribution of answers obtained from this question, it was noticed that most of the respondents

**Table 10.** Chi-square values.

<b>Statistics: I 17(2) x I 21(2) (CHESTIONARE.sta)</b>			
<b>Statistic</b>	<b>Chi-square</b>	<b>df</b>	<b>p</b>
Pearson Chi-square	3,181818	df=1	p=0.0446
M-L Chi- square	3,408687	df=1	p=0.0486



**Figure 9.** The correlation between the respondents' opinion regarding the future prevention of the deficiencies identified by the internal audit within the hospital and the age of respondents.

**Table 11.** The distribution of the answers.

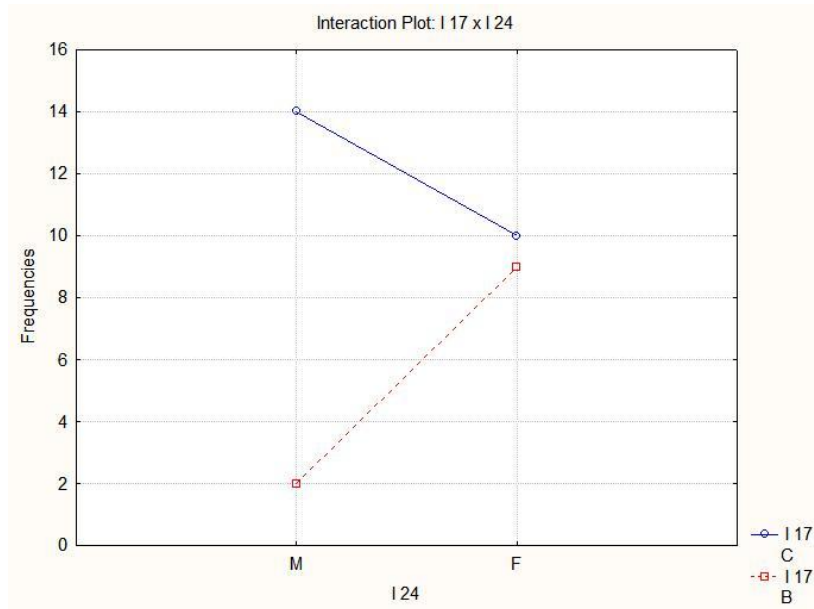
<b>2-Way summary table: Observed frequencies (CHESTIONARE.sta)</b>			
<b>Marked cells have counts &gt; 1</b>			
	<b>I 24</b>	<b>I 21</b>	<b>Row totals</b>
<b>I 17</b>	<b>M</b>	<b>F</b>	
C	14	10	24
B	2	9	11
Totals	16	19	35

**Table 12.** Chi-square values.

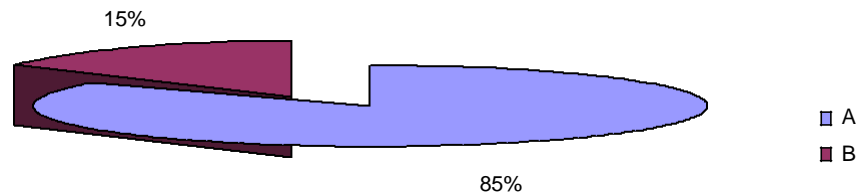
<b>Statistics: I 17(2) x I 24(2) (CHESTIONARE.sta)</b>			
<b>Statistic</b>	<b>Chi-square</b>	<b>df</b>	<b>p</b>
Pearson Chi-square	4,900070	df=1	p=0.02686
M-L Chi- square	5,230502	df=1	p=0.02220

**Table 13.** Dependent variables.

A	A partner of the management in improving the hospital performance
B	A partner of the financing authorities



**Figure 10.** The correlation between the respondents' opinion regarding the future prevention of the deficiencies identified by the internal audit within the hospital and the respondents' sex.



**Figure 11.** Role of the internal audit within the hospital .

(85%) perceived internal audit as a partner of the management in improving the hospital performance. The respondents' choices did not depend on either the dependent or independent variables used to test the possible correlations, and this means that there are no significant differences of the opinion at the level of categories of respondents or at the level of categories of hospitals where the respondents are working. In addition, when analyzing the specific correlations related to the particular situations identified at the hospital level, it can be noticed that there is no significant association in terms of statistics. Therefore, the null hypothesis  $H_0$ , according to which there is no correlation between the respondents' opinion

regarding the role of internal audit within the hospital and the respondents' personal information was accepted, which meant that, between the two variables, there was no association. Therefore, hypothesis  $H_1$ : There is a correlation between the respondents' opinion regarding the role of internal audit within the hospital and the respondents' personal information, was not empirically validated.

## Conclusions

Internal audit has been recently regulated for the public

sector in Romania, within the process of accession to the European Union. The national regulators' attempts to give an international dimension to the internal audit in the public sector have not exhaustively comply with the realities, but have generated confusions and false interpretations concerning the role of the internal audit. these were considered as the reasons for the absence of comprehensive regulations regarding the internal audit into public hospitals, as well as for the conditioning of the internal audit function by the number of beds held by the hospitals. The empirical research undertaken in the public hospitals from Romania has shown the following:

- i) The internal audit function is covered in less than one-fourth of the public hospitals included in this sample.
- ii) Out of the categories of public hospitals existing in Romania, the mono-speciality hospitals and those of chronic diseases show an extent of non-coverage of the internal audit function higher than 50%.
- iii) Some 73% of the hospital managers consider that internal audit adds value to the institution through the assessment of the internal control, 57% through the risk management and only 19% through the agency of corporate governance.
- iv) About 73% of the hospital managers consider that the only way through which internal audit generates value added to hospital is the diminution or elimination of the unjustified expenses.
- v) About 69% of the hospital managers consider that the deficiencies (distortions) identified by internal audit within the hospital are prevented in the future in a proportion that is higher than 50%. In respect of the women respondents' view as compared to that of the men, it was found that men are more optimistic than women.
- vi) Most of the managers, regardless of the hospital category (85%), consider internal audit as a partner of the management in improving the hospital performance.

On the grounds of the research results, we reckon that although the internal audit has given the quality of the management partner in improving the performance of public hospitals in Romania, it actually cannot prove its quality due to the privation of the internal audit function and the limitation of its role of value creation through the agency of the internal control. In this respect, it is appraised that there is a required resizing of regulations and approaches of internal audit in accordance with the existing realities, so that the function of internal audit could contribute to the improvement of public hospitals performance in Romania.

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## Annex 1

### QUESTIONNAIRE

#### Concerning the internal audit in public hospitals from Romania

- 1) Your hospital is situated in the county ....., locality .....
- 2) Your hospital enters the category:
  - i) Institute;
  - ii) Emergency hospital;
  - iii) Mono-speciality hospital;
  - iv) County hospital;
  - v) Chronic disease hospital;
  - Other type of unit with beds.
- 3) Is the internal audit function covered in your hospital? - Yes or No.
- 4) Please give a grade from 1 to 3 in accordance with the value added by internal audit to the institution through the following ways (1 = low value, 2 = medium value, 3 = high value).
  - Internal control
  - Risk management
  - Corporate governance.
- 5) You consider that in your hospital the internal audit adds value through the performed recommendations concerning:
  - i) Diminution of expenses;
  - ii) Elimination of unjustified expenses;
  - iii) Identification of new sources of revenues;
  - iv) Identification of alternatives to clear pending debts.
- 6) You consider that the deficiencies (distortions) identified by the internal audit within the hospital are prevented in the future in a proportion of:
  - 0%;                      below 50%                      50 - 100%.
- 7) You consider that in your hospital internal audit is:
  - A partner of the management in improving the hospital performance;
  - A partner of the financing authorities.
- 8) Your age: \_\_ years old
- 9) Your seniority within the healthcare system is of: \_\_ years.
- 10) Your seniority in a managing position is of: \_\_ years.
- 11) Your gender is: Female or Male.