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# SUMMARY
# Ph.D. THESIS

# INCREASING MANAGERIAL PERFORMANCE BY IMPLEMENTING THE TIME-DRIVEN ACTIVITY-BASED COSTING METHOD IN THE ROMANIAN HEALTHCARE SYSTEM

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## 1. Key words:

Management accounting, costing, TD ABC method, cost, budget, budgetary practice, budgetary control, classification, correlations, statistical correlations, statistical analysis, nonparametric data, management, strategic management, performance management models, performance, performance indicators, financing decisions, evolution, information, quality, health, scores.

## 2. Introduction and reasons for choosing the research theme

Lately, the medical service market tends to become insufficient compared to the increasing needs of the population. From this perspective, specialised papers and articles suggest that the increase in chronical diseases, the population ageing, the evolution of the scientific techniques, and the changes in the family structure are reflected in the changes that occur in the population's consumption, diseases and techniques. Thus, a contradiction appears between the strong increase in the service demand and the social protection supply that tends to decrease.

Thus successive reforms emerged in the healthcare system with the purpose of improving management and ensuring transparency in the allocation of resources, which deeply changed the logic of the healthcare system, leading to the establishment of a quasi-market logic.

Although management accounting in Romania underwent a number of developments and in-depth research, the research in this field and the specialised literature are insufficient to provide the role of management accounting as management tool.

Given the preoccupations manifested at national and international level for the orientation of the budgetary resources allocated from the system financing to the financing of the specific need, on patient – a system that changes the world – we believe that it is useful to assess the costing method applied in the medical service field with the purpose of identifying directions of increasing the quality of the managerial act.

## 3. Need of the research

In the attempt to highlight the relevance of the theme and the field of research, I brought up for discussion, first of all, the economic and social specificity of the

healthcare system. It is understood that health has a cost, sometimes an exorbitant cost for the community. At the same time, health should not be viewed only from a purely economic perspective, because "life is priceless" and the patient would give anything when it comes to save his life.

However, the activity of the medical service units should be governed by the principle of efficiency in the use of funds to build an organization in which the employees obtain performance - a dynamic process that involves all stakeholders' openness towards novelty and commitment. Such a process is based on clarity and transparency, on the commitment of all those who have common objectives.

Healthcare involves constraints that are difficult to quantify, and for which the management must make efforts to provide stability – maintaining a minimum staff turnover rate, optimizing the bed occupancy rates, avoiding the long duration of hospitalization, reaching quality standards, etc., and the results are also difficult to quantify: a percentage as high as possible of patients satisfied with the medical act and the increase in the quality of the medical services while increasing efficiency and reducing costs.

## 4. Objective of the research

The fundamental objective of the Ph.D. thesis is to prove that only through a rapprochement between time and space we can obtain relevant results for the achievement of high performance in the given conditions of the current healthcare system, and the application of the Time-Driven Activity-Based Costing method is the most appropriate solution. It would not be possible to reach the objective without meeting partial theoretic and practical objectives, as follows:

***a) Theoretic objectives***

- Outlining the conceptual framework of performance management and the method defining it;
- Identifying the economic and social specificity of the healthcare system in the international and national context;
- Developing a perspective on cost architecture and the budget use as performance measurement tool;
- Highlighting the current costing image and cost management in the healthcare system;
- Finding an answer to why the application of the ABC method is not efficient and developing a new perspective on costing in the hospital healthcare system.

**b) *Applicative objectives***

- Determining the correlations that exist between the quality of the medical act and the economic and financial management by means of scores;
- Determining the correlations that exist between the quality of the medical act and the economic and financial management by means of correlation coefficients based on nonparametric data;
- Revealing the specificity of costing in a dental office and in a hospital;
- Carrying out an empiric study on the application of the TD ABC method in a medical centre.

## 5. Research methodology

The research methodology I used provides the harmonious and consistent blending of the main research methods in order to facilitate the correct understanding of the results obtained, being included in the constructivist – positivist current, without however neglecting the required critical approaches.

The theme of the research thesis was based on the deductive-inductive approach. From the deductive perspective, we can say that the research presents the quantity data and principles, ensures the generalization of the results and the

explanation of the links between various variable used and theories applied. From the inductive perspective, I made constant efforts to use quantity data relevant for the understanding of the context.

From the typology of the adopted research, we can say that the approach of the PhD thesis combines, on the one hand, the theoretical research with the applicative one, the empiric one with the interpretative one, while on the other hand, it combines the longitudinal comparative research (related to the presentation of the evolution of certain costing methods) with the transversal comparative research (through the comparative presentation of certain concepts and theories), without neglecting the data collection and analysis, including the creation of models.

## 6. Synthetic presentation of the chapters of the Ph.D. thesis

***Chapter 1.*** **Performance management or management performance – a challenge for any leader**

In the attempt of creating the conceptual and motivational framework of the research, we started from the belief that the management approached concomitantly as theory and practice represents one of the most important economic-performance generating factors present at the level of a company. Its efficacy, efficiency and functionality largely depend on the efficiency, efficacy and quality of the management.

Following the path of history, I noticed that the development and individualization of the management is a direct consequence of the need for a better use of the resources at the level of an organization, and in this context, specific theories, concepts and individualizations were developed, such as the performance management concept.

Performance management means essentially exercising management processes which, through redesign, reconstruct the set of processes from the perspective of the increase in efficiency, leading to the improvement of the economic and social performance.

In an overview the performance management models can be viewed as being extremely useful tools that contribute to the measurement of the efficiency and efficacy, being based on three important parameters: the availability rate, the efficiency rate, and the quality rate; the share of the three indicators leads to a global rate of return and to the detection of the real causes that generate organizational performance bottlenecks both as a whole and on each organizational structure.

Thus we can say that management performance is the consequence of the operationalization of the managerial redesign framework and of the methodologies of remodelling the components of the management system. Functionality and managerial performance depend on the quality of the methodologies and the competence of those who use them, and if they are present, the required conditions are met for the achievement of economic performance in the managed field.

***Chapter 2.*** **Difficulties and challenges in the assessment of the healthcare system performance**

Healthcare is a special field, and there are, at European level, two main healthcare system application models, namely the Beveridge model and the Bismarck model, which however are not applied evenly, in the European Union countries.

The comparison of the healthcare system requires taking into account the manner of financing, the administration, and the relationships with the professional structures, patient organization and care, the control of the access to the healthcare act within specialized hospitals. This is the reason why there are not two completely

identical systems in the EU. However, EUROSTAT permanently publishes information related to the manner of covering healthcare expenses, governmental and social insurance funds having the highest share. In our opinion, the mere comparison of percentage rates is not relevant as long as the basis in absolute value that is applied is different.

In our country, the decentralization of the healthcare system is viewed as the link of the process of modernization and harmonization with the European healthcare standards.

Starting from the CNPV mention highlighting that what differentiates the Romanian healthcare system from other systems is found in recording certain modest basic indicators of the health status (life expectancy at birth, infant mortality, overall mortality on avoidable causes of death, degree of morbidity, healthy life years), but also the low level of information concerning the health risk and protection factors or the healthcare system and the basic service package, it is necessary to research performance from the perspective of its defining indicators.

Achieving performance involves the use of standards in all three components of the healthcare systems: standards related to the resources (human, material and financial), standards related to the process (the healthcare activities and procedures) and result standards (appreciated by means of the satisfaction). Standards translate quality into operational terms, which set minimum levels of excellence or performance compatibility ranges.

In the medical sector, the continuous performance improvement is more easily perceived and assimilated than other apparently rigid terms, such as the overall quality management. Given that the notion of quality represents a continuous process that involves all the structures of the organization and the medical staff must adhere to this philosophy, to this approach, using specific methods and procedures related to the quality of the patient's treatment, diagnosis and care.

The provision of performance was spread as a necessity for all categories of organizations, following the technical boom that becomes increasingly sophisticated, as a result of the cost increase, the market development. In relation to the medical units that provide medical services, the population's expectations, in relation to the lifespan and welfare are important factors contributing to the same evolution. At the same time, the improvement of the reference standards related to performance management and ensuring performance in the healthcare field, and also understanding them in relation to the service provision facilitates their application.

Introducing performance approaches in the medical units that provide medical services needs a thorough change, initiated by the top management and all the hierarchical people in charge. However, this change must be implemented at all levels of the medical units that provide medical services, in order to be effective and efficient. Consequently, it is necessary to train the whole staff of a healthcare organization, all healthcare professionals and the whole Romanian healthcare system, interested in more effective medical healthcare and for lower costs, without affecting patients' safety and security.

The assessment of the performance of a healthcare involves both measuring and analysing its capacity to reach its overall objectives, as well as the improvement of healthcare and better social protection in relation to the population, and is one of the highest efficacies of the healthcare system. It also involves determining the extent to which the results are related to intermediary objectives, in terms of access, coverage, quality, safety of the healthcare services, contributing to the achievement of these objectives.

Analysing the content of the performance indicators of the Romanian hospital management, we can notice that, in addition to the advantages it represents, it also has a number of deficiencies, on the one hand, it does not separate the quality of the

medical act in itself and the management of the material resource through which the respective services are provided, while on the other hand, it does not cover the whole area outlining hospital performance.

Starting from the idea that the use of the performance multi-criteria analysis, in the hospital system allows for a more accurate validation of the activity, compared with the currently used methods and following the correlations between the economic efficiency scores and the technical competence ones, for all analysed hospitals, we can notice that there is no correlation between these values, which suggests that hospital management performance is a delusion because the different and multiple subordination of the medical units correlated with the separate assessment of management competences and capacities makes it impossible to generate management solutions.

***Chapter 3.*** **Cost-type information – a healthcare system performance management tool**

The management of an entity organized in the healthcare system has a number of responsibilities related to the use of the resources made available to it to cover the expenses that need to be incurred in order to carry-out the activity, but they are never at the level desired by the management and proposed by means of budget indicators, they are, instead, at the levels decided by superiors through the allocated resources. I drew this conclusion by focusing on the three aspects involved in the healthcare financing system, i.e.: the collection of sources for the payment of healthcare services, the allocation of the collected sources to the healthcare service providers, the remuneration of the production factors spent by healthcare service providers.

In addition to the fact that the relationship between the cost-type information and the decision to finance is inversely proportional, we can also notice that the manner of determining costs that in fact play the role of tariffs allows for the emergence of information asymmetry. As long as the doctor has the information, the patient is influenced by him in relation to the medical services which can be provided to the latter, as well as the extent of their provision. Consequently, despite all current norms, the doctor is the one who sets the price.

As in any other field of activity, in the healthcare system too it is necessary to know the path to be followed, an approach involving the elaboration of an income and expense budget and the subsequent performance of budgetary control. In theory, the content and the methodology of the elaboration of an income and expense budget is based on the same universally applicable principles, but the complexity of the activity performed leads to a delimitation between the two types of budgets, namely the budget of the medical office in question and the budget of public hospitals.

Focusing on the budgetary practice correlated to the sources of financing the activity performed in the healthcare system, we can notice that principles are overthrown, more specifically, expenses do not generate future benefits, on the contrary, predictable incomes admit a certain level of the expenses which questions the role of the budget of assessing performance in the healthcare system.

What we notice, however, is the fact that the structure of the income and expense budget observes the principle of budget specialization according to which incomes are presented on sources, and expenses on types of expenses, according to their nature and purpose, following the budgetary classification, and its control is made both ex-ante, and afterwards by means of the internal audit.

In relation to costs, we should also mention the specificity of their calculation. The research related to this aspect leads to the conclusion that the costing procedures are much more visible compared to cost calculation methods, which however, can be, in theory, brought up for discussion. Whether we are talking about

cost calculation processes or methods, as in the case of budgeting, the practice is different depending on the complexity of the medical act, from the simplest one specific to medical offices and to clinical/laboratory services and dental services, to the most complex ones as in the case of hospitals.

We aimed to find out whether the information related to costs, as it is currently obtained, helps achieve a high-performance management of the medical units or not. The conclusions we drew, in which we assess the limited nature of the cost-type information, depend on several factors, as follows.

As in any field, in the healthcare system too, the concept of result is naturally monitored. However, the power of the cost-benefit analysis is only partial because, in the healthcare system it is difficult, or even impossible and undesirable to measure health in terms of money as benefits for those who must help prevent and fight disease.

In other words, although the DRG system taken over from the Australians was implemented and largely adapted to the specificity of our country, we can see that the element related to the level of payments is represented by the income and not by the insured risk which contributes to the dilution of the role of the average cost per patient in the internal analysis related to the activity performance.

The implementation of SIUI in the social insurance system leads to a closed circuit of the information, exclusively inside the system and lacking transparency in the relationships with the public. This observation is also based on the content of the "Activity reports" of the hospitals that are based on a standard framework structure and in which information related to the technical performance are predominant, while economic performance is less visible and assessed only from the perspective of the cost per day of hospitalization, as a total and per section.

Although the technical performance is related to the quality of the medical services, up to now the problem of how much non-quality costs has not been brought up for discussion. If such a cost was determined, we would see that non-quality costs more than the quality of the medical services.

Starting from the studies carried out by J.Lave and L.Silverman, by means of the proximity technique by which they proved that results relevant for the achievement of higher performance under the current circumstances of the healthcare system can only be obtained by a rapprochement between time and space, in our opinion, the application of the Time-Driven Activity-Based Costing method is the most appropriate solution.

## ***Chapter 4.*** **Genesis, evolutions and implications of the calculation concept on activities related to the healthcare system performance management**

Making a brief incursion into the evolution of the cost calculation methods based on activities, we can notice that starting with the 1950s, the European literature and practice were flooded with a number of new theories and concepts based on a connexion between accounting, management, marketing, etc., thus generation a genuine revolution in the cost calculation system methodology.

Although some of these methods had been known right from their emergence, as is the case of the standard cost method, we can notice that, for the past 40 years, a barrier was established against the application of this method which is viewed as an extra-accounting intrusion of engineers for the determination of real costs.

As a reaction to the complexity of the standard cost method, and also in order to improve the current methods, especially in France, we have found a number of preoccupations in this respect. For example, from the methods based on the homogenous unit principle, we find methods based on coefficients of equivalence which culminated with the GP method and the direct cost method.

Nevertheless, Americans' interest to counteract the Japanese methods that were gaining ground in the automotive industry between 1980 and 2010 is characterised by the emergence of a new concept based on activities, referred to as ABC. The principle of this method is familiar; it involves taking into account, in a logical manner, the resource consumption process, eliminating those which have not contributed to the value creation activities, and highlighting costs via value creation activities. For this purpose, it is necessary to adopt a transversal perspective of the company, rather than a functional view of such company.

Unlike the methods based on the homogenous unit principle, where indirect costs are allocated to cost centres and then shared between products by means of arbitrary coefficients, the ABC method follows some logic based on which the activities spend resources at process level and the products spend activities depending on how much cost factors are used.

The ABC method can be seen as an American "reinvention" of the homogenous unit method in which its technical qualities are not much better, but place it above the other methods due to the fact that it can be integrated with the EVA (Economic Value Added) indicator. Certain supporters of the ABC method even admitted that, when they are used "appropriately", the ABC method and the homogenous unit method give the same results from the point of view of costs, even though, according to M.Lebas, the ABC method cannot simply be reduced to a cost calculation method.

Harshly criticised, the ABC method follows the Gauss curve and is beginning to lose interest, especially in the specialised literature, being replaced by a simpler method referred to as TDABC.

In an article published in 2007 by R.S. Kaplan and S.R. Anderson in which we find a suggestive paragraph entitled "Time-Driven ABC : vin vechi în sticle noi ? (Time-Driven ABC : old wine in new bottles?)", the authors deny any connection with the reuse of the current practices of the ABC method because it uses only one cost driver which is required for the operations.

Moreover, the method introduces a new concept entitled "resource group" which is essentially an aggregation of the activities that consume the same resources. Kaplan and Anderson assimilates the "resource group" with an organizational unit or a service with the mention that a department cost is valid only if the mixture of resources supplied is approximately the same for each activity and transaction performed within the department. This assumption is not observed if the activities and transactions using the resources that are performed within the same department are different.

The complexity of the operations is also found in the equations of time required to determine the resources spent by each activity. Using these equations, it is easy to update the model by adding an additional activity. This would allow for the multiplication of the activities that are to be treated without any difficulties related to the distribution of resources. In fact, what we have here is clearly an "autonomous method of equivalence" that uses the work time as a unit of equivalence.

Focusing on the essence of the TDABC method, in our opinion three sequences were outlined: the analysis of the events required to carry out the activity and determining the equation of time; determining the cost per minute; determining the cost per patient and whose presentation was made both in theory and in practice in a case study.

The case study I carried out in the CAM MED Medical Centre in Vâlcea County was meant to explain the relevance and managerial impact of the TDABC system on the healthcare system in the outpatient clinic field. In our opinion, the TDABC system corresponds to the healthcare system because it includes, in addition to the advantages of the traditional ABC system, certain additional characteristics, it

provides faster adaptability and a modelling of the complexity of the operations specific to the field.

Analysing five medical offices with different specialties (ophthalmology, endocrinology, cardiology, ENT, and internal medicine), we can see that the size of the standard cost of the examinations shows the influence of the specificity of each specialty, the differences implied by the more or less intense use of the medical equipment, and the differences related to the cost per time unit. The standard cost of the examination takes into account the minimum package required by the CNASS (National Health Insurance House) can be increased if additional activities are added.

The advantages of the TDABC method are multiple and aim especially:

- To supply accurate and relevant information which allows for the establishment of an internal reference exercise, an open communication between the doctors in the medical offices and the manager of the centre/clinic, concerning the improvement of the operational times;
- To analyse the profitability on medical offices (departments) comparing the costs of the medical services provided in outpatient clinical system to the amount reimbursed by the National Health Insurance House for such services, which reveals the ability of the tariffs charged by CNASS to cover the healthcare system costs, as well as the managers' advantage to benefit from relevant information that can be the basis of the negotiation of the tariffs with CAS;
- Making decisions concerning future investments based on the information on the cist per minute, especially the cost of using the medical equipment.

Since nothing is perfect, and everything can be improved, all the more so when we refer to new models and theories, TDABC method also gets criticism and warnings related to a number of problems for which there is still no answer in its concept and which are related to determining the reference costs that should be taken into account (the standard or the real ones), establishing the capacity of activity that is taken into account in order to determine the sub-activity cost, providing the homogeneity of the consumption and eliminating the difficulties related to measuring times.

Despite all the difficulties found in relation to the TDABC method, in our opinion, this is an alternative of the ABC method that contributes to the reduction of the complexity of the operations by means of the equations of time and that allows for taking into account, in a simplistic manner, the impact of the complex phenomena on costs.

If the success of the implementation of the TDABC method depends on the good organization of the information system, significant criticisms can be expressed in relation to the concept of the method.

## 7. *Conclusions and own contributions*

### A. Conclusions

For years, the healthcare market has tended to limit the supply compared to the increasing needs of the population. From this perspective, certain papers suggest that the increase in chronical diseases, the population ageing, the evolution of the scientific techniques, and the changes in the family structure are reflected in the changes that occur in the population's consumption, diseases and techniques. Thus, a contradiction appears between the strong increase in the service demand and the social protection supply that tends to decrease.

Under the influence of the economic constraints (deficit reduction), social constraints (pauperisation of the society), technological constraints (increasing

innovative treatments), the healthcare system was marked by numerous reforms manifested both at international, and at national level.

The purpose of the reforms made was to modernize the management of the healthcare system and providing transparency in the allocation of resources, which measures deeply changed the logic of the system and allowed for the establishment of a quasi-market logic.

The objectives of the reforms made are multiple, but, first of all, the performance increase by developing economic and medical management tools, supporting investments and providing the free choice of the strategies by the organization. Consequently, the revamping of the manner of financing medical entities allows for the increase in the accountability of the stakeholders and providing equal treatment between the public and the private sectors.

Within any socio-economic system, performance is viewed as a reference system for managers and performers, as a manner of assessing the objectives and the results. An efficient company exploits the opportunities provided by the environment effectively, rapidly overcomes challenges, obtains competitive advantages on the market and last, but not least, meets, in terms of quality and quantity the social need to which it is addressed.

In this context, the organization performance should no longer be viewed simplistically, in the form of financial and accounting results, it should aim both financial and non-financial aspects of the activity.

Healthcare is a special field, and there are two main models at European level - Beveridge and Bismarck, but these models are not applied evenly.

The Romanian system is different from other systems due to the fact that it records certain basic indicators of the health situation (life expectancy at birth, infant mortality, overall mortality on avoidable causes of death, degree of morbidity, healthy life years), the low level of information concerning the risk and protection factors for the healthcare system as well as the basic medical service package, which requires examining performance through management specific indicators.

Analysing the content of the Romanian hospital management performance indicators, we can notice that in addition to its advantages, it also has a number of deficiencies: on the one hand, there is no delimitation between the quality of the actual medical act and the method of managing the specific material resource, and on the other hand, it does not cover the whole area outlining the performance of the medical act.

In general, hospital management performance indicators are related to the technical efficiency, but it must be achieved at minimum costs because it involves the use of limited human and material resources (doctors, nurses, drugs and equipment).

Although in the healthcare system we can find a special specific cost terminology, specific to each organizational structure, the common trait is given by the utility of the cost-type information which can be analysed in correlation to the decision to finance medical services. The research carried out on this topic enabled us to provide an answer to the question: how independent is the management of an entity operating in the healthcare system?

Analysing the three aspects involved in the healthcare financing system, namely: collecting the sources for the payment of the healthcare services, allocating the sources to the service providers, and remunerating the production factors spent by them, we can notice that the relation between the cost-type information and the decision to finance is inversely proportional, and the manner of establishing costs plays the role of tariff, allowing for the asymmetry of the information.

As in any other field of activity, in the healthcare system too it is necessary to know the path to be followed, an approach involving the elaboration of an income and

expense budget and the subsequent performance of budgetary control.

In addition to the fact that we are confronted with two types of budgets, more specifically the budget of the medical office and the budget of public hospitals, if we analyse the budgetary practice in correlation to the financing sources of the activity performed in the healthcare system, we can notice that principles are overthrown more specifically, expenses do not generate future benefits, on the contrary, predictable incomes admit a certain level of the expenses which questions the role of the budget of assessing performance in the healthcare system.

In the attempt of achieving the partial theoretic objective "outlining the current image of cost calculation and management in the healthcare system", that the costing procedures are much more visible compared to cost calculation methods, which however, can be, in theory, brought up for discussion.

The conclusion we have reached is that, whether we are talking about cost calculation processes or methods, as in the case of budgeting, the practice is different depending on the complexity of the medical act, the practice is different depending on the complexity of the medical act, from the simplest one specific to medical offices and to clinical/laboratory services and dental services, to the most complex ones as in the case of hospitals.

Harshly criticised, the ABC method follows the Gauss curve and is beginning to lose interest, especially in the specialised literature, being replaced by a simpler method referred to as TDABC.

In finding an answer to why the application of the ABC method is not efficient and generating a new cost calculation perspective in the hospital healthcare system, we analysed, by means of a comparative theoretical study, the ABC method and the TDABC method and we detected a number of advantages of the latter.

Although it is a simpler method, the complexity of the operations can be found in the equations of time required to determine the resources spent by each activity. Using these equations, it is easy to update the model by adding an additional activity. This simplification would allow for the multiplication of the activities that are to be treated without any difficulties related to the distribution of resources. In fact, what we have here is clearly an "autonomous method of equivalence" that uses the work time as a unit of equivalence.

### B. Scientific contributions

In the research performed we tried to add our own contribution to the research in the field, commenting upon and supplementing certain concepts, supplementing the specialized literature with new ideas, revealing a certain specificity in the healthcare costing field, by proving the possibility to implement new and modern methods based on the relationship between space and time.

According to the content of the chapters that is subordinated to the objectives of the research axes, we can briefly bring up for discussion the following scientific contributions.

***1. Outlining the conceptual framework of the performance management can be supplemented*** by highlighting a new vision according to which performance is governed by some constant laws despite permanent changes**,** and the compliance with these laws ensures the adjustment of the strategic approaches to the dynamic requirements of the business environment and which refer to:

- The perpetual intuition law – the law that must govern the decisional space of an entity and which complies with the process of achieving performance, which is continuous;
- The awareness law – a law underlying pertinent analyses related to the accumulation of factors expressing the potential of the entity;

- The scaling law deriving from the phrase "structure follows strategy" and according to which the continuous redesign of the organizational structure is an answer of the organization to the changes occurred in its external environment;
- The law of contribution according to which the staff employed, involved in the "processes" of achieving results, is connected and consequently accountable. For this, it is necessary to provide an internal information network, both horizontally and vertically, to integrate the responsibilities of the management and of the human capital, which approaches will lead to accountability and unitary and joint liability;
- The mirror law – a law that must be viewed from the perspective of its duality in the area of the perception of the informational utility. The mirror law acts, on the one hand, from the perspective of the environment in which the organization operates, and respectively by the manner in which the level of performance achieved by the organization is perceived, and on the other hand, the mirror law acts as a feedback of the results that has the role to determine the reconsideration of the organization development strategies from the perspective of its adequacy to the need to maintain some balance of the performance induced by the respective resonance.

Taking into account the five performance laws, our opinion is that the managers-management duet is the cornerstone of any complex approach that aims at achieving managerial performance and ultimately, economic performance.

***2. For a more accurate validation of the activity carried out in the healthcare system,*** compared to the current methods used, we proposed the multi-criteria performance analysis in the hospital system.

In a first stage, we tried to validate the classification of hospitals on a scale from 0 to 11 of the indicators within the four groups of indicators (human resources management, service use, economic and financial, and quality), compared to the classification made by the Ministry of Health, based on the same indicators, but on a scale from 0 to 6. The results obtained help us assess that the measures taken in a relatively recent period of time, for the classification of the hospitals on competence criteria resulted, in the absence of a rigorous substantiation, in closing some medical units.

In the second stage, following the correlations between the economic efficiency scores and the technical competence ones, for all analysed hospitals, we can notice that there is no Kendall correlation between these values, which suggests that hospital management performance is a delusion because the different and multiple subordination of the medical units correlated with the separate assessment of management competences and capacities makes it impossible to generate management solutions.

A simple visualisation of the Kendall correlations confirm the statement above that through significant negative correlations that suggest the following aspects:

- An increase in the staff expenses does not mean that there is also an increase in the share of doctors, medical staff or higher education personnel in the total staff that leads to an increase in the average number of examinations per doctor/in the outpatient system;
- An increase in the average hospitalisation time and of the bed occupancy rate does not imply a decrease of the staff expenses, of the drug expenses and of the average cost/hospitalization day;
- The increase in the average number of examinations per doctor/outpatient system and of the average hospitalization time does not imply a decrease of the average cost/hospitalization day;

- The increase in the number of surgical interventions does not contribute to the decrease of the average cost/hospitalization day.

***3. In the attempt to answer the question Does the information related to costs, as currently obtained, help achieve an efficient management of the medical units?*** we created two costing models, one at the level of a dental medical office, and another at the level of a hospital, which we used to reach certain personal points of view and the limitations of the cost-type information in ensuring an efficient management which we synthetized as follows:

- Despite of the fact that, as in any other field, the idea of result is monitored in healthcare as well, the power of the cost-benefit analysis is only partial because, in the healthcare system it is difficult, or even impossible and undesirable to measure health in terms of money as benefits for those who must help prevent and fight disease;
- although the DRG system taken over from the Australians was implemented and largely adapted to the specificity of our country, we can see that the element related to the level of payments is represented by the income and not by the insured risk which contributes to the dilution of the role of the average cost per patient in the internal analysis related to the activity performance;
- The implementation of SIUI in the social insurance system leads to a closed circuit of the information, exclusively inside the system and lacking transparency in the relationships with the public;
- Although the technical performance is related to the quality of the medical services, up to now the problem of how much non-quality costs has not been brought up for discussion. If such a cost was determined, we would see that non-quality costs more than the quality of the medical services.

All these strengthen our belief that, in the healthcare system, only through a rapprochement between time and space we can obtain relevant results for the achievement of high performance in the given conditions of the current healthcare system, and the application of the Time-Driven Activity-Based Costing method is the most appropriate solution.

4. ***In order to validate the TDABC method as tool with a more accurate approach of performance management,*** we carried out a case study in the CAM MED Medical Centre in Vâlcea County, which was meant to was meant to explain the relevance and managerial impact of the TDABC system on the healthcare system in the outpatient clinic field.

By analysing the essence of the TDABC method, in our opinion, three sequences were highlighted: the analysis of the events required to carry out the activity and determining the equation of time; determining the cost per minute; determining the cost per patient and whose presentation was made both in theory and in practice in a case study.

Analysing five medical offices with different specialties (ophthalmology, endocrinology, cardiology, ENT, and internal medicine), we can see that the size of the standard cost of the examinations shows the influence of the specificity of each specialty, the differences implied by the more or less intense use of the medical equipment, and the differences related to the cost per time unit. The standard cost of the examination takes into account the minimum package required by the CNASS can be increased if additional activities are added.

In our opinion, the TDABC corresponds to the healthcare system because it includes, in addition to the advantages of the traditional ABC system, certain additional characteristics, allows for rapid adaptability and a complex modelling of the operations specific to this field.

Since nothing is perfect, and everything can be improved, all the more so when we refer to new models and theories, TDABC method also gets criticism and warnings related to a number of problems for which there is still no answer in its concept and which are related to determining the reference costs that should be taken into account (the standard or the real ones), establishing the capacity of activity that is taken into account in order to determine the sub-activity cost, providing the homogeneity of the consumption and eliminating the difficulties related to measuring times.

Despite all the imperfections found in relation to the TDABC method, we believe that this is an alternative of the ABC method that contributes to the complexity of the operations by means of the equations of time and that allows for taking into account, in a simplistic manner, the impact of the complex phenomena on costs.

## 8. Content of the Ph.D. Thesis

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***Rapoarte, comunicate de presă, proiecte şi acte normative ale organismelor internaţionale şi naţionale***


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