



**Management and
Business
Administration
Doctoral School**

SUMMARY OF THESES

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**Use of controlling systems in Hungarian health care institutions:
paradox of rise and fall**

Supervisor:

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Associate professor

Budapest, 2017

Institute of Management

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I. Theoretical background and actuality of the thesis

I.1. Relevance of the topic

After the Second World War – due to the expansion of the insurance system – public resources arrived in the health systems of developed countries [Orosz, 1999], ensuring the cover of the rising health care costs until the economic crisis. The increase of health care costs was realized due to several factors: rising consumer expectations, demographic changes, population health status and lifestyles (aging), moral hazard phenomenon, health technology cost-increasing or development of price and salary in health care [Orosz, 1999, Gulácsi, 2005, Schultz, 1983]. The expenditure of health care began to limit because of the increasing gap between the technically possible, medically necessary and be financed from public funds [Gulácsi, 2005]. In Hungary, the period of expansion is missed, moreover, the health spending of GDP still remains low [Orosz, 1999], currently it is 7.4% of the GDP (average of the OECD is 8.9%) [OECD, 2015]. Because of the cost-containment, the demand for information- and evidence-based decisions may increase and the maintaining of the health care quality becomes a challenge for governments [Gulácsi et al. 2012].

In many Western European countries the movement of New Public Management has appeared with reforms focusing on effectiveness and efficiency and these measurements by using management devices from business sector. [Rosta, 2012, Drótos et al., 2007, Bodnár et al., 2011, Nyland – Pettersen, 2004]. Hungary also has made numerous programs and plans for sustainable of health care but management information and decision support have negligible role. These reforms are based on macro level and typically focus on health care resources and structures. The organizational effectiveness could be appreciated by controlling systems, it is responsible for goal setting, planning, performance measurement and monitoring, ensuring information for decision making, coordination of these activities and last but not least, implementation of economic transparency [Horvath, 1997; ICV IGC, 2012].

Several researches were made in the field of international health management and controlling, whose necessity are indisputable because of the continuous decreasing of resources and cost-containment in health care. The Hungarian health care studies affect the management area, partially [Kiss 2014, Révész 2014, Stubnya 2010] or entirely [Dózsa 2010, Takács 2012], but none examine especially the controlling systems.

The issue of health care controlling research originates from the actual problems: decrease of health care resources, disproportionate financing and restrictive elements of the public health system. I present the pattern of controlling systems in Hungarian health care, the opinions and experiences of experts and users: institutional managers, decision supporters, as well as manager of governmental owner.

I.2. Research objectives

The fraction of national literature contains publications in the context of health care controlling; a total of three journals are close to the topic of my study. Because of the unexplored research area, my primary goals are

- to collect and systematize the national literature, the focus of researchers and professionals,
- to explore the controlling systems used in Hungarian health care institutions and these effects on internal and external changes, and
- to introduce the managerial application of controlling systems.

By the control mechanisms of health care institutions, not only the – narrowly defined – controlling system can be known but the motivation system is required to organizational operation. Related to the systems, my objectives were

- to get to know and demonstrate the motivation and expectation of controlling application by the top management and medical managers, decision support staff and last but not least, managers of maintenance, and
- to introduce the importance of controlling systems for health care institutions, which can be useful in the narrowing health care resources.

The emphasized goal is to publish the results of the Hungarian health care controlling.

- The broader toolkit of controlling and the collected best practices help the decision-makers and controllers in their work.
- A further aim is to encourage the use of these devices, both institutional and maintainer/policy level.

I.3. Theoretical background

From controlling systems the managers expect to subserve the operation of hospitals by increasing the economic stability (Papp 2003, 2004). It is interpreted by different approaches, depending on the context of managerial use: financial approach, cost and coverage controlling aspects, motivation system based controlling, benchmarking or information centred controlling perspective. These diverse roles of controlling are based on each other and support each other in a strong controlling system.

In Hungary controlling has become a core issue with the introduction of performance financing (HDRG) and since then financing has been in focus, sometimes with coverage calculation or benchmark elements. Contrarily, a range of international publications is about the prompt cost increase in health care and as a result, these writings concentrate on the more accurate knowledge (methodology and application of costing) and possible decrease of costs as well as on the results and experience of reforms indicated by the demand for cost control. But Hungarian literature hardly deals with performance measurement although planning is one of the most important elements of management control systems. Planning and plan and actual data comparisons are not in focus, the cause of which is not obvious according to the available literature, nor are the application of information and the decision mechanism of hospital management clear. Due to the turbulent environment of past decades (Dózsa 2010), the managers of health care organizations and hospitals react to changes more slowly and carefully, however, the integrating, the maintenance as well as the available utilization of organizational information would serve as one of the most important tool of management. Instead, the intensifying uncertainty generates an adverse reaction and the solution 'is looked for again and again in the context of performance increase' (Zétényi 2006). The connection of information and decision making is hardly known from publication, although the controller (Dencsi – Varró 2008) has to 'assess the realization of goals established by the management, and has to reveal such narrow cross-sections which may impede the realization of purposes'. The pre-requisite of this is that the hospital management and sector as well should have a well-defined strategy and medium and short term plans which provide the opportunity for controllers to perform the classic controller work.

The controlling thinking of health care institutions has changed significantly over the past two decades. Following the introduction of performance-financing system, controlling is periodically a "popular" area: up to the introduction of PVL it was the subject of professional

discourse. In the “PVL-free period”, the thinking based on motivation in a manager-based approach/way, coverage calculation, benchmark, and appropriate information support appeared and for 5-7 years it was determinative not just in the life of the pioneer institution. The introduction of PVL and government austerity measures restrained this control-based management: caused a paradoxical situation, the devaluation of controlling. Despite the continuous decreasing of resources in the health sector, controlling may be a support tool in effective (or less loss-making) management. The strengthening of financial approaches includes faulty assumptions: managers mistakenly believe that the limitation of cost (or even expenditure) could improve the output of the department or institution, especially in an uncertain and turbulent environment. In contrast, the coverage calculations, institutional comparisons reveal potential reserves, show profitable activities, and the building of an organizational motivation system can support achieving organizational goals.

Early works in the topic of controlling connect the evolution of institutional controlling to the specialities of the financing system. In other words, with the introduction of performance based financing a ‘demand of economic fairness’ (Molnár - Nagy 1996) and economic stability (Papp 2004) are required and this seems to be implemented in the motivation system based on controlling. After its introduction, this demand – until the initiation of PVL – subsisted since the frequent changes of financing rules and sometimes contradictory policy and owner expectations generate further challenges for health care organization (Papp 2004). In 2004, the implementation of performance volume limit (PVL) aimed at the prevention of overspending of Health Insurance Fund incited the writing of some publications, but then a long, quiet period came (2007-2014). Later, some young researchers (Mattiassich 2014, Mattiassich – Bubori 2015, Zemplényi et al. 2014) have begun to publish their studies, but the change came with the SROP 6.2.5-B-13/1-2014-0001 project named ‘development of organizational efficiency in the health care system - the development of regional co-operation’. The project was launched by ÁEEK (National Health Care Services Centre, maintenance organization of state-owned hospitals) to increase the operational efficiency of the health care system, which has one sub-target to develop the regularity, consistency, and quality of available management information and decision support system for institutional managers and maintainers. In this framework a uniform chart of accounts, the department and case level controlling methodology and manual has been developed. During its implementations, 51 institutions successfully started the departmental controlling system, and 12 institutions collected cost data of 2440 total cases with the case level controlling

methodology (Nikliné, 2016). The national dissemination took place after the implementation period, but its impact is not yet known.

II. Methodology

The thesis is logically composed of two parts of research: exploration of controlling systems in health care (A) and analysis of use of management information (B). The research questions are the following:

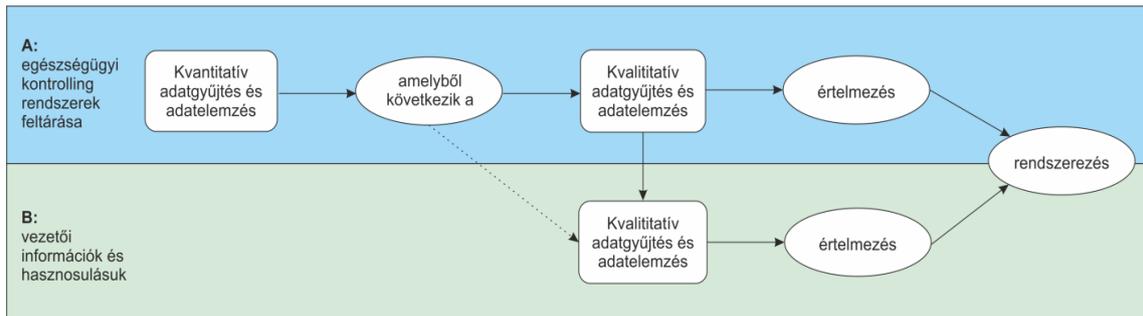
A.	Controlling systems in hospitals
1	What does controlling mean in the daily routine?
2	What kind of tools do top managers use for decisions?
3	How does controlling modify operation and decision-making?
B.	Use of management information and controlling system in different managers levels
4	Where are information points in hospitals for supporting decision-making?
5	What is the scope of management information?
6	How do the top managers and medical managers use the available information?

1. Figure: Questions of the two research units (own table)

It is not necessary to use different (quantitative and qualitative) methods for the two parts, but undoubtedly the statistical analysis was evident because of the existing of SROP questionnaire, which covers almost all Hungarian hospitals. The result of the survey enables to know widespreadly the controlling system and to signalize those areas where the personal involvement is essential for deeper understanding.

Almost the research topic selects the application of Grounded Theory, linked to Glaser and Strauss [1967]. By knowing the theoretical background of the common application of quantitative and qualitative techniques, I chose the mixed methods research, named the third paradigm in the latter period. The researches are based on mixed methods target of coordination of different methodologies and differ from multimethods research, in which more qualitative or quantitative methods are used [Király et al., 2014]. The exploration of controlling systems is examined with mixed methods, added further research issues for use of

management information because of the close interconnection of the two subjects. In my research, the methodology is succeeding explanatory mixed method structure [Király et al., 2014] or interpretative sequential modelling [Santha 2013b]. As the resulting figures and tables of controlling questionnaires (quantitative data analysis) remain sterile without deeper knowledge [Santha 2013b], therefore it is complemented with qualitative study and the results are jointly interpreted.



2. Figure: Methodology of the thesis (own figure, based on Creswell – Plano Clark [2011] and Király et al. [2014])

The second part of the thesis is based on quantitative analysis using structural modelling techniques – SEM LVPLS model – for settlement of the controlling health care system factors in a single structure. The research questions are examined with qualitative tools: homogeneous focus group with decision supporters and individual interviews with managers of hospitals and owner and experts or consultants.

	Statistical path analysis	Focus group	Interviews with experts, managers and owners
research	A		A and B
sample	almost the whole population – governmental institutions	participation from different institutions (type of hospital and number of bed), controlling or financing area	managers of owner experts/consultants managers of hospitals
data collection	questionnaire	focus group - interview	interview
software	IBM SPSS 22	Verbi MAXQDA 12	

3. Figure: Summary of selected methods for answer of research questions (own table)

The statistical analysis examined the institutions maintained by state; the sample covers almost the population of public financed health care providers – except university clinics, Medical Centre of Hungarian Army and some small foundations and ecclesiastic providers. Then the qualitative study builds on the findings of the statistical analysis; the sample includes different types and sizes of institutions – paying particular attention to the response of universities – and so private health care institutions. Community health centres, regional hospitals, national institutions, universities and rehabilitation centres are in the sample. For the selection of the institutions, the applying of controlling system (data from questionnaires) was taken into consideration. In addition to the hospital general directors, experts (meet all health care sector) and leader of maintainers were also asked for generalization of research results.

III. New scientific results of the thesis

The new scientific results based on three interdependent and hierarchical pillars are the following: (1) new approach to controlling components with path analysis method, (2) internal role of decision support functions in health care system and (3) use of controlling data and their characteristics in the different management hierarchy.

III.1. New approach to controlling components with path analysis method

- 1.1. The results of research confirmed that in those cases where the statistical methods assuming classical normality cannot be used because of the nature of the data SEM-LVPLS clearly reveal relations between the variables by checking if the constructed model is good. In addition, the planning and analysis patterns were also described with simple statistical indicators.
- 1.2. I was the first to determine the relationship between controlling elements (environment, planning and analysis) arranged in statistical blocks, using the IBM SPSS software. With the graphical results, the context of the overall controlling system was demonstrated clearly and in a way easy to comprehend.
- 1.3. This analysis was the first to prove that:
 - The institutions choose the indicators describing the controlling environment similarly, and these have great influence on planning (0.54) and reporting (0.83).
 - The full impact between analysis and environment (on the environment-planning-analysis path) is 0.49, which is much higher than the direct environment-analysis effect (0.04). This means that the analysis is not directly affected by the choice of the environmental elements but through the planning it does have a significant impact.
- 1.4. As an impact on practice, I point out that
 - The institutions typically do performance planning; but in case of revenues, costs and results, the analysis prevails.
 - The institutional dimensions vary considerably from department-level activities out of which planning and analysis have low frequency and very high deviation.

- 1.5. As a future research agenda, I mark the exploration of the reason of result of path analysis. Later (in chapter III.), I partly present it in the context of controlling thinking. The relationship between the quality of controlling activity and the management of institution (most of all the economic balance) is examined further research area but to find an adequate methodology is a huge challenge, knowing the specialities of Hungarian health care sector. And so:
- exploring the planning deficiency and preparing proposals for solutions;
 - analysing the reporting systems and feedback management;
 - impact analysis of standardizing controlling activity, named in SROP 6.2.5-B-13/1-2014-0001.

III.2. Internal role of decision support functions in health care system

- 2.1. Involving groups affected directly by health controlling systems, I did individual and homogeneous focus group interviews. I confirmed that the most important opinions and attitude of the participants, based on their honesty, are identified by the structured processing (by Verbi MAXQDA 12 software) of qualitative information – in addition to conventional processing –and by it the research questions are refined effectively.
- 2.2. I presented, for the first time, in my research that a centralized health care environment affects the institutional controlling systems, and even modifies the decision support and management. With tools of qualitative research, I defined the management and the planning (missing element of controlling function) and highlighted the influence of external factors.
- 2.3. Study identifies the following neuralgic points, which are also the practical results of the research:
- Currently, controlling is a retrospective analytical tool, and has a ‘Jolly Joker’ function for all kinds of institutional ad-hoc tasks instead of the classic controlling function.
 - Due to under-financing and soft budget (debt consolidation), managers’ approach to financing became excessive thus depreciating controlling.
 - Unbalanced financing rates between medical professions cause internal tension and disinterest in medical management.

- Due to the performance limitations, the excessive emphasis on budgeting leaves no room for the application of controlling approach and its tools, which could be a modern management tool, taking into account the quantitative and qualitative standard of patient care.
- Financial security of the activities is required to compose a sustainable professional structure, but institutions only know approximate values.
- Reduced financial resources hinder the operation of the motivation system, driver of the whole system.

2.4. Paradox of a devaluing controlling system: the environment expects a strong use of controlling tools (cost and coverage calculation, capacity and benchmark analysis, motivation systems), but the devaluation of hospital controlling system is still identified. The financing approach is in the thinking of hospital managers: they are seeking to achieve the economic stability by maximizing the financing revenue, maintaining the liquidity and lobbying for the bailout.

2.5. In the examination of the relationship between health care system and controlling systems, a wide range of future research areas have been described, the most outstanding are:

- examining the complex extension of control functions, e.g. as a maintaining tool or a policy device for coordinating different level of patient care;
- the retention of the complex interest system and its solution proposals can also contribute to the balance of the sector;
- human resource planning and management is poor or does not function, while the retaining and encouraging of emigrant practitioners has importance in health care;
- reducing the phenomenon of soft budget constraints is a continuous dilemma in healthcare, so exploring its tools is an excellent field of research;
- the building of knowledge base and its sharing in the field of health care management may result a further interesting research.

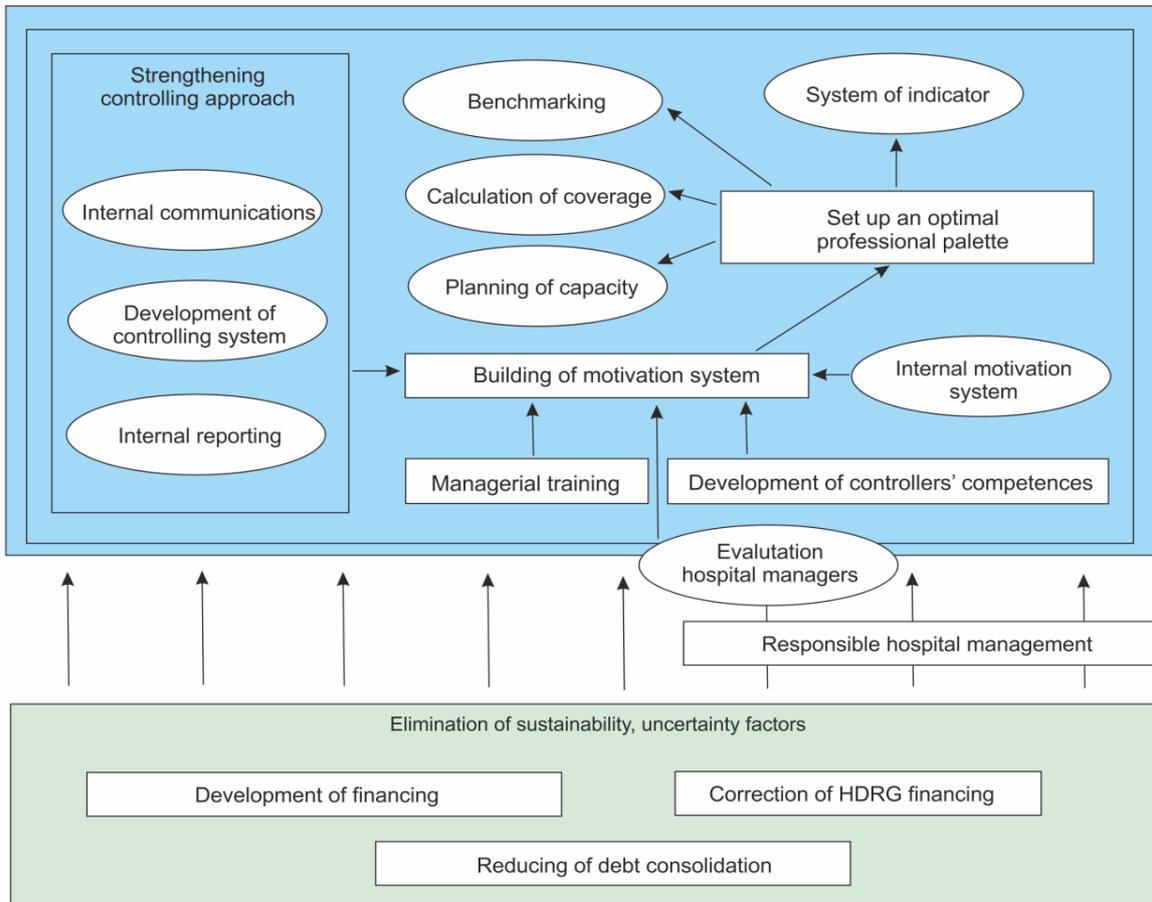
III.3. Use of controlling data and their characteristics in the different management hierarchy

- 3.1. The homogeneous focus group interview conducted with controllers confirmed that the application of the controlling system is essential in managerial decision-making, but its advantages and disadvantages is hardly known among the top managers and less among medical managers.
- 3.2. Analysing interviews and focus group discussions, I pointed out that management information system data has narrow scope; typically data examining the past that support short-term and financial thinking and use internal information.
- 3.3. The weakness of management information practical application is the financial perspective; different knowledge and interests; and personal management approach:
 - Top managers typically require financial data. They deal with performances and revenues, and do not consider cost data as valid.
 - Medical managers make professional decisions that focus more on patient safety and quality. Performance monitoring has been included in their approach but financial data are neglected depending on needs of top managers.
- 3.4. In the majority of institutions, diagnostic system was developed, whose main function is performance distribution and monitoring, in addition to strong financial control.
- 3.5. The decision support and use of controlling information include further research possibilities:
 - the medical thinking about controlling could be deeply explorable by using case study methodology in a selected profession;
 - the operational mechanism of the motivation and controlling system in public and for-profit health care institutions is comparable and the possibility of transposing best practice can be examined.

III.4. Summary and conclusions

Manager of organization is responsible for the design of the organizational structure, the coordination of processes and definition of duty list [Dobák - Antal, 2010]. In contrast, the primary goal of most hospital manager is to lobby sources for the provide health services to owner, financial agencies and professional organizations. The phenomenon of SBC and debt settlement (particular decision maker's expectations, beliefs of the bailout) is forming strongly the attitude of leaders. As [Kornai 2009] composes 'the stronger the hospital manager's position is in relation to the hospital's superior organizations, the insurer providing the funds and the institutional owner providing the subsidy, the greater the hope of rescue.' As an annually practice, the financier/maintainer is providing funds to settle hospital debts, to reduce supplier debts and to reduce the waiting lists. As long as the anomalies of health care system (sustainability and predictability) and void of motivation system (involvement and accountability of top management and medical management) exist, while the function of controlling systems may not use. The controlling supports those managers, who form hospital to work organization (re-designing and organizing of departments, works, processes and institution) and manage the institution by design, organization and management principles. In this case, the leader has to take decisions with full of conflicts; the controlling is essential device for support and validate the decisions.

On institutional level, controlling approach is critical for usage, which can be achieved with common development and internal communication. The common development may include validation of expenditure data, creation of internal and external benchmark reporting system, creation of indication system, application of modelling, etc. The coverage calculation provides an opportunity for prioritizing successful profession and process, determining the optimal professional palette which is supported by costing methodologies. Besides, it is also essential for competence development and training of managers and controllers, expansion of management knowledge and competence. The figure 4 illustrates the results and suggestions collected and systematized during the research.



4. Figure: Summary of results and suggested solutions on institution level (own figure)

The precondition for building and applying a controlling system that supports effective organizational operations is a comprehensible environment that can be created jointly by policy and politics.

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V. Own publication in the topic

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3. Krenyácz, É. [2017]. **Controlling in the Hungarian hospitals: history and key issues.** *Society & Economy in Central and Eastern Europe* befogadott publikáció

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5. Krenyácz, É. [2017]: **How does centralized health care system modify management control devices?** European Health Management Association 2017 Annual Conference, Italy, Milan, 13-15 June 2017