

**University of Miskolc**

**Faculty of Economics**

**Elemér Hantos Doctoral School of Economics and Regional Sciences**



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**Specificities of performance management in state-owned hospitals**

Theses for doctoral thesis (PhD)

*Miskolc, 2024.*



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**Specificities of performance management in state-owned hospitals**  
Doctoral (PhD) thesis

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## **Table of contents**

<b>I. Rationale for the choice of topic.....</b>	<b>1</b>
<b>II. The theoretical basis of the research .....</b>	<b>9</b>
<b>III. New and novel findings of the research.....</b>	<b>21</b>
<b>IV. Bibliography .....</b>	<b>35</b>
<b>V. Author's publications .....</b>	<b>39</b>



*Outstanding performance comes from outstanding commitment."*

*Andrew Matthew*

## **I. Rationale for the choice of topic**

The key role of performance evaluation and management was first recognised by large companies (Bass, 1972), which achieved significant success, effectiveness and efficiency by operating processes and implementing appropriate systems. This phenomenon is reflected in the growing body of national and international literature and publications on the subject. The importance of the topic is also demonstrated by the fact that several publications (Gergely, 2011; Révész, 2015; Imreh 2002; Gaál, 2012) have also examined the performance management systems and tools of the public service sector. My choice of topic and its relevance is justified by the importance of the health sector and the increasing prominence of the quality of its services, which means that, like the business sector, the public sector needs to adapt successful methodological solutions from the business sector. A well implemented and operated performance management system not only results in customer satisfaction, but can also provide a competitive advantage, organisational competence and capability over peers, which has a positive impact on the management and positioning of the organisation. I therefore chose performance management at the organisational level in public service organisations as the topic of my dissertation, with a focus on publicly funded health care institutions. In my view, a structured analysis of this sector will provide information and methodological solutions that will help to make performance management a management philosophy for these organisations (Kucsma, 2021, Dózsa, 2010; Csákvári, 2012).

My research focuses on the advantages and disadvantages of performance management systems in the public sector, which can also provide important results for improving efficiency. In addition, it can serve as a starting point for defining research questions and identifying elements that can be adapted to a new support ~~framework model~~. Krasz (2008) has focused on the existence of fairness in the study of performance systems, and has concluded that the role of trust and impartiality is important, and I will address this factor.

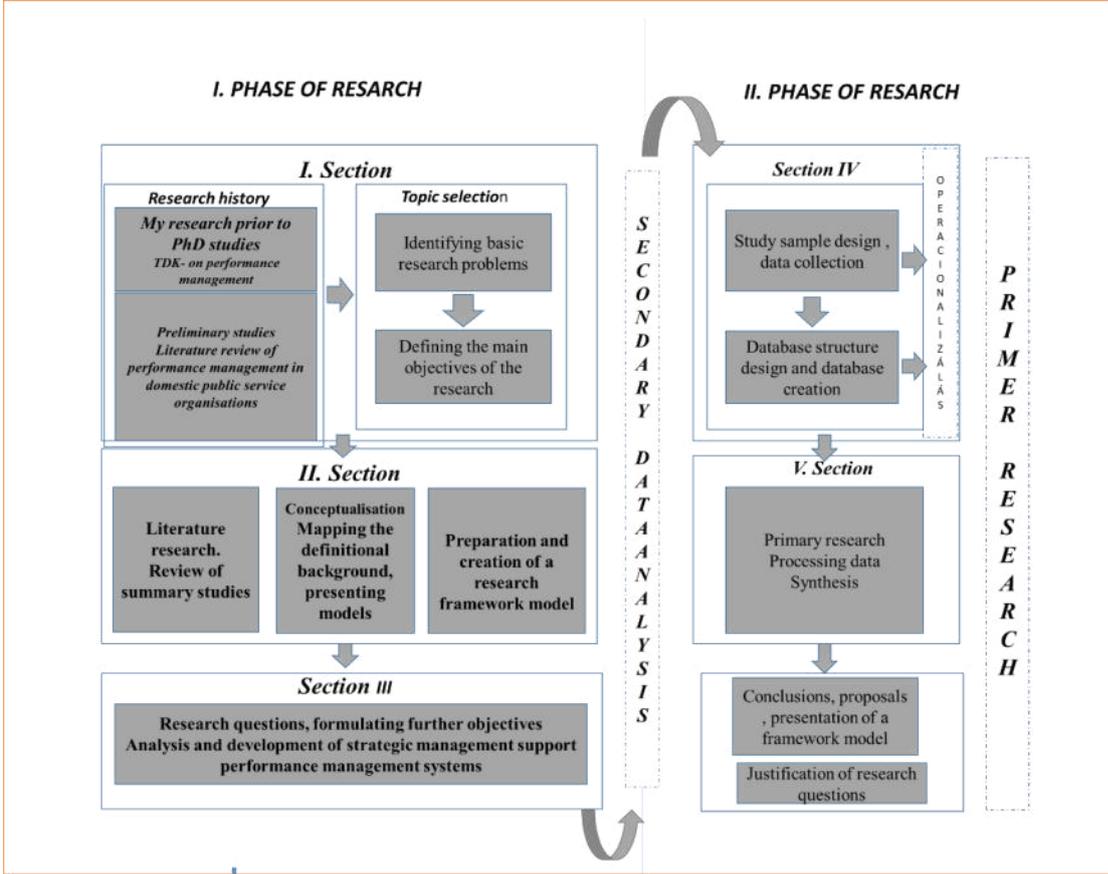
Health care is primarily about healing, but it is also useful to look at the economics of it, because there are many barriers to healing that economics can help to address (Pulay, 2011).

This identifies a research gap that can be specified for organisational performance management in healthcare institutions. Following the literature review, it can be concluded that there is no comprehensive synthesis study that focuses on performance measurement and evaluation and comparative analysis of the effectiveness of publicly funded health care institutions. There are, of course, some studies describing the basics of a possible system, but the complete analysis is not presented. The combination of methods that will be developed in my research will, I hope, contribute to the development of the health sector and to the improvement of the use of resources.

### **Research process and objectives**

Designing the research is one of the most important steps in the thesis. There is a large body of literature on how to structure research properly. To describe my research process, I have drawn on the work of Babbie (1986) because it is able to integrate the results of both primary and secondary research in a well-structured way. It provided a framework for my work that helps

to ensure a logical structure, thereby also visualising the parallel work processes. I divide my research into two phases, one is starting the research and processing the secondary information, and the other is researching the primary information and using it. I define phases within each phase, as illustrated in Figure 1.

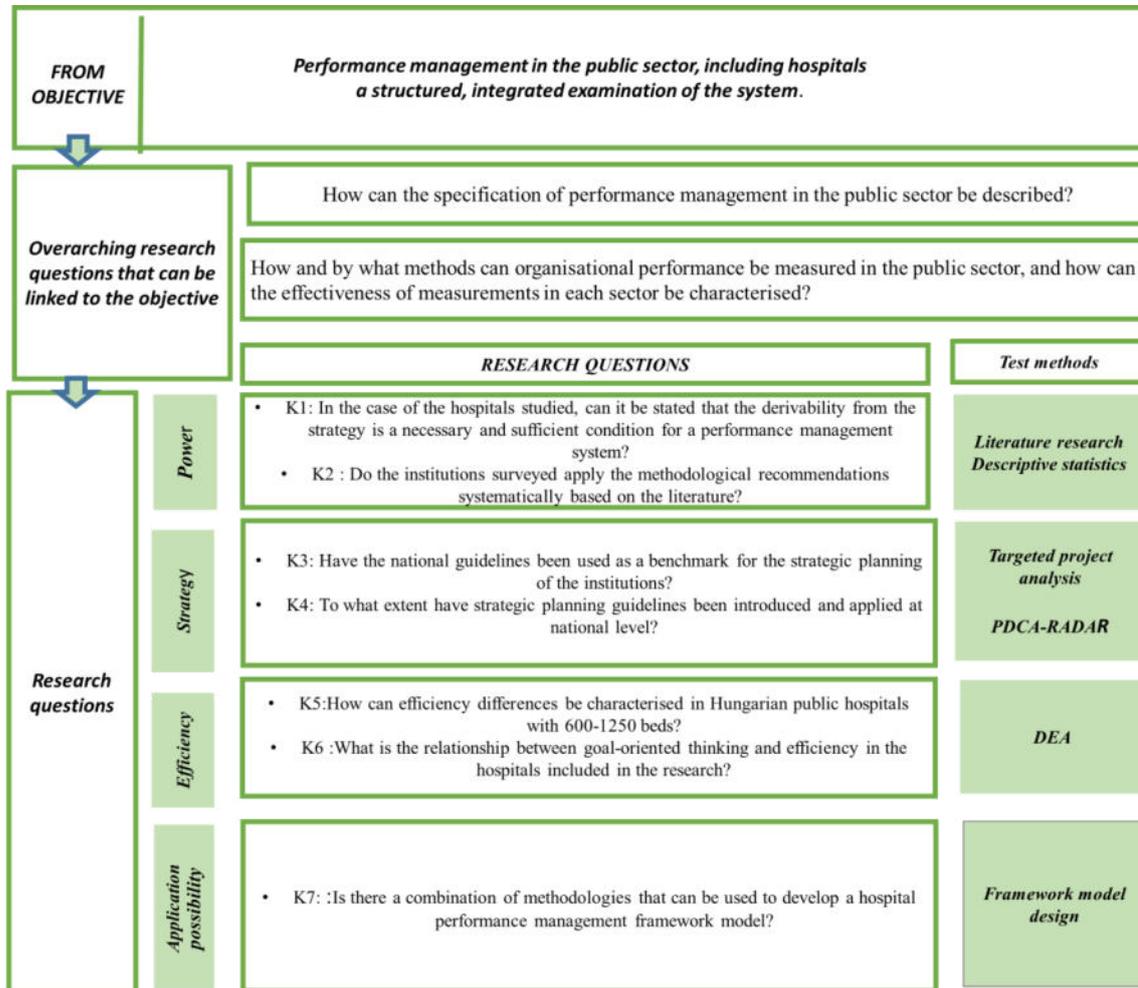


1Figure : Presentation of the research plan  
 Source:Based on own editing (Babie 1986, 2008)

Figure 1 illustrates my activities in this area during my university years prior to the research. Phase II is a literature review and the creation of the research framework model, while Phase III includes the formulation of the research questions and the setting of research objectives. Phase IV is the carrying out of the research-related tests and calculations, and finally the last phase includes the validation of the research questions and the conclusions.

## PRESENTATION OF RESEARCH OBJECTIVES

The main objective and the related tasks and research questions that were defined in the initial phase of my research are illustrated in Figure 2.



2. Figure: Presentation of research areas and questions

*Source: own editing*

In order to answer the research questions derived from the research objectives, I prefer to examine each area of analysis. Accordingly, the tasks linked to the areas of analysis will be identified separately.

For each area of analysis, I have set up separate questions, so that the corresponding tasks are also presented in this way.

**Performance-related** research tasks:

- Mapping performance management models.
- Structured comparison of models.
- Evaluation of indicators.
- Application of the performance life cycle developed by Van Helden (2007).

I consider it of particular importance to emphasize performance management at the organizational level, as I want to evaluate hospitals as a whole and not focus on individual performance, so related literature is relevant to my research.

Research tasks related to *the strategy*:

- Analysis of a national-level policy,
- Mapping the availability of strategy statements,
- Examination and comparison of strategic statements (Tushman, 2004),
- Collect performance targets set out in the strategy statement,
- Comparison of strategy and performance targets, analysis of the relationship,
- Preparation of RADAR analysis.

It is important to mention that performance management is closely related to the formulation and development of strategy - i.e. it is derived from it -, so there is room in my research for the integration of these two management areas, and for the related question of *how the performance management system at the organisational level can be adapted to the strategic goals of a healthcare institution*.

Research tasks related to *efficiency*:

- Selection of hospitals, creation of a database grouped according to a defined criterion (total number of hospital beds).
- Study of efficiency test methods, determination of input and output indicators.
- DEA database preparation.
- Efficiency measurement, analysis.

In the analysis, particular attention should be paid to identifying the indicators that are available and meaningful in the sector/sector under study. This challenge can be addressed by the relative efficiency analysis (DEA) method, which is based on linear programming (Dénes et al, 2017; Lapid, 1997).

Research tasks related to *potential applications*:

- Presentation of the selected basic model.
- Structuring indicators.
- Alignment with efficiency, strategy.
- Introduction of new pillars, development of a test model.

The fourth area is significant because it summarises the results of the first three areas and allows the modeling process to validate the management support logic.

Tasks related to the purpose of the research:

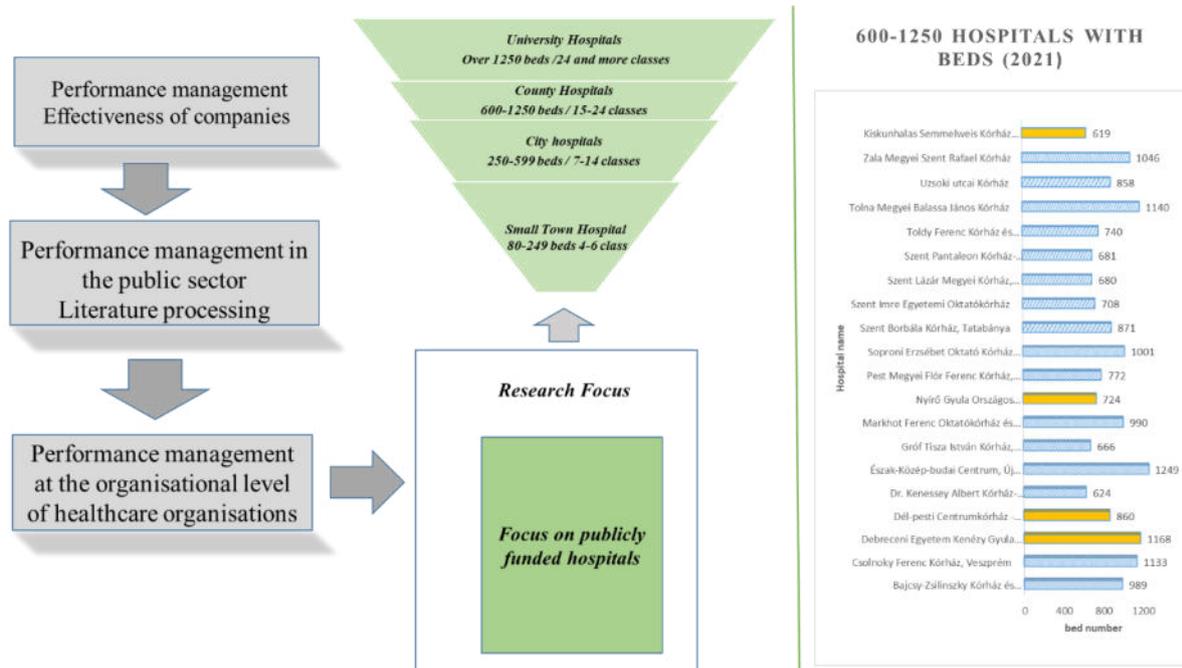
- Mapping the basic concepts of performance management, choosing a benchmark concept. Using the PRISMA method to create a literature screening.
- Comparison of systematic performance management in the competitive and public sectors.
- Comparison of methods used.

- Understanding the objectives of performance management.
- Understanding the barriers in systems.

Having studied the diverse literature on performance management, my research has led me to the conclusion that the application of performance management in the public sector can also support the development of a successful and effective framework for performance management in the competitive sector. The primary research direction of my thesis was initiated by this question. A further direction was identified in an article by Gajduschek published in 2011, which argued that the fundamental problem with performance management is that it is completely alien to public sector practice. In his view, it can only be successful in the public sector context if the adaptation is done in the right way. This line of thinking led to the identification of the research problem: how to make performance management a management philosophy in the public sector and **how to adapt one of the models that has been successfully applied in the competitive sector to the specificities of the sector**. Based on my literature search, I have found that the study of the public sector is a complex task (Burton et al, 2015), and therefore a sector selection is necessary. Within this, it is also appropriate to narrow the focus of my study, the logic of which is illustrated in Figure 2. In this way, I arrived at a quasi-homogeneous research focus whose methodological investigation is well understood.

The institutions I have chosen are organisations with 600– 1250 beds, and in my research I will examine these institutions from the strategic and efficiency point of view. In defining the sample, the first priority was to select the complex activity carried out by the institution ( 2 levels of progressivity ). I did not wish to carry out a territorial delimitation within the country, because the number of these institutions is 16, which I considered necessary to carry out a meaningful analysis. I treated the performance volume limit (PSC) and (HBCS) based financing as margin determinants for each hospital studied. The hospitals under investigation, which have the same progressivity level, are publicly funded and have a territorial coverage obligation, operate in the same legal environment, and therefore do not constitute a differential for me. At the time of their selection, they were functioning as county hospitals, and I will retain this terminology in all chapters of the thesis.

It is worth noting the limitations of my research, which is why I excluded from the study institutions that operate in a specific sector (such as the Gyula Nyíró National Institute of Psychiatry and Addiction, which, as its name suggests, specifically deals with psychiatry and addiction). I have clarified the pattern with the results of the changes: the National Institute of Mental and Neurological Surgery was created by merging the Gyula Nyíró National Institute of Psychiatry and Addiction and the National Institute of Clinical Neuroscience, and will be operational from 1 April 2021. The Kiskunhalas Hospital has become a member institution of the Szeged University Teaching Hospital. The Dél Pesti Hospital was not included in the study, as it became a merged institution; nor was the Kenézy Gyula Hospital, as it became a member institution of the Debrecen University Teaching Hospital. The composition of the number of beds in the institutions studied is shown in Figure 5, of which the institutions in green are included in the sample, while those in orange are excluded from the study for the reasons given above.



3. Figure: Narrowing down the test sample  
 Source: own editing

### Methods used in the research

I used the following methods in my research:

- Structured literature search (PRISMA)
- Quantitative methods (DEA analysis, RADAR)
- Qualitative analysis (Van Helden life cycle model)

#### *PRISMA method for structured literature review*

A systematic literature review requires a high level of scientific attention and meticulous research from the very first steps. Attention should be paid to methodological details and analyses, as a methodologically systematic analysis is important. A poor quality systematic review is misleading, so precise delimitation is necessary when using this method (Kamarási, Mogyorósy 2015). The solution I have chosen, focusing on the analysis methods, is originally a methodology for health analysis, which was developed by a team of international experts. The name of the methodology is a mosaic word (Preferred Reporting Items for Systematic reviews and Meta-Analyses). The essence of the methodology is that it consists of a 27-item checklist to produce an efficient four-phase transparent ordered literature review.

PRISMA steps (Varga, 2021):

1. The first step of the research was identification, starting with a systematic search and analysis of the literature. A systematic review of available databases was important, as the literature in this area is quite diverse.
2. The second step is to define the criteria for the literature screening. For the literature screening, I used the following criteria (year, in-text definition, Hungarian, English) to achieve a more accurate result.
3. The third step is to check for compliance, remove duplicates and filter the selected communications.
4. The fourth step is selection, i.e. preparing the publications included in the evaluation for analysis.

#### *DEA method for assessing organisational effectiveness*

The DEA (Data Envelopment Analysis) method defines the efficiency values (ratio) and the efficiency frontier as a linear programming task. The advantage of DEA is its non-parametric nature, because knowledge of the production function is not a prerequisite (Dózsa, Ecseki, 2012).

The analysis compares the efficiency scores of the decision making units, with the best performing unit having an efficiency score of 1 (100%). The procedure is used to calculate an efficiency frontier (best practice), which is used to determine an efficiency ranking (each unit is ranked in percentage terms) (Banker et al, 1984).

DEA actions:

1. First step: in all cases, data collection.
2. Second step: defining and matrix making the DMU, i.e. the inputs and outputs that can be matched to the strategic objectives.
3. Step 3: Consideration of model specifications.
4. Step four: repair and improvement.
5. Step five: perform and evaluate the calculations.

#### *RADAR method*

In the organizational self-assessment, the quantitative assessment of the organization allows comparison with others. Thus, it is suitable for comparing the hospitals I have identified. The method is based on a numerical scoring, for which I use the RADAR assessment matrix harmonized with the PDCA cycle developed by EFQM (Turcsányi, 2014).

RADAR steps:

1. ***The first step in the*** method is to define the desired goal and the results that the organisation wants to achieve, and the directions that offer opportunities for improvement. In general, the financial and operational objectives are the primary focus, but it is also worth considering stakeholder satisfaction, since one of the core tasks of a health institution is to provide good care for stakeholders, in addition to operational efficiency.
2. ***The second step is to*** choose methods that will help you to implement the plans formulated in the first step. The adaptation of methods, tools and techniques is also foreseen in this cycle.

3. **The third step** is to use these directives and extend their application.
4. **The fourth step** is the so-called monitoring, i.e. the follow-up of the results achieved and the identification of the area for improvement, which is used as a basis for the ranking.

#### *VAN HELDEN LIFE CYCLE MODEL*

The understanding of performance management and the approaches to it are diverse. Van Helden et al. (2007) present a model that takes a life cycle approach and highlights elements that are relevant to performance management at the organisational level (Révész, 2015). They have approached performance management with different objectives and questions, and have therefore used different methodologies, leading to findings that are difficult to reconcile.

Methodology steps:

1. **Design:** the basic elements and objectives of the system are defined.
2. **Implementation:** a description of how to implement the system developed in the first phase.
3. **Use:** To explain the system already established, how it works in practice and how it can be adapted to the specificities of the sector.
4. **Impact:** to examine the impact of the performance management introduced
5. **Evaluation:** a two-way test of the organisational evaluation and the adequacy of the organisation's performance management system.

A **process-oriented** approach is a fundamental feature of all my research methodologies, and the approach represented by Van Helden therefore supports the search for context.

## II. The theoretical basis of the research

I will first systematise the understanding and approaches to performance and performance management in the public sector. In reviewing the literature for my research, I have sought to provide a comprehensive overview of performance management, which will also help to go into more detail. I also consider it important to present the general and public sector specific characteristics of performance management. In my review of the national and international literature, I will consider theoretical and practical issues that contribute to the logical structure of my research. The backbone of my thesis is performance management, but due to its link to strategic management, I will also cover this topic area in the theoretical basis of my research /The source of sustainable competitive advantage is not only financial indicators or innovative technology, but also people (Veresné Somosi et al,2023), so it is worthwhile to integrate qualitative factors into my analysis based on these ideas. In this part of my research, I will also focus on health systems.

In this chapter, I systematise the understanding and approaches to performance and performance management in the public sector. In the literature review for my research, I have sought to provide a comprehensive picture of performance management, which will also help to go into more detail. I also consider it important to present the general and public sector specific characteristics of performance management. In the course of the review of national and international literature, I will consider theoretical and practical issues that contribute to the rationale and understanding of my research. The source of sustainable competitive advantage lies not only in financial indicators or innovative technology, but also in people (Veresné Somosi, et al. 2024), so it is worthwhile to integrate qualitative factors into my analysis based on these ideas. In this part of my research, I will also focus on health systems.

### PERFORMANCE DEFINITIONS

Based on the literature screening (PRISMA) carried out, the definition given by Szűts (1983) is that performance is nothing more than the achievement of objectives and the amount of effort that has been expended to achieve the expectations set. In this concept, it is not only the desire to achieve something that is reflected, but also the calculation of the economic indicators that are at the forefront of how much effort is required to achieve it.

In conclusion, there is no generally accepted definition, and even those authors who deal with performance measurement or performance management in the literature do not define the concept, assuming its meaning to be common knowledge (Wimmer, 2001). However, because of the topic of this dissertation, it is necessary to talk about the concept of performance in the public sector. After reviewing the literature on performance definitions, it can be stated that there are two approaches to performance in the public sector (Van Dooren, 2006). One approach is that *performance is seen* as a *value*, and the other approach is that *it is an intended behaviour*.

In my work, the value approach is better suited to the understanding of performance, so an overview of performance management is the next step.

## APPROACHES TO PERFORMANCE MANAGEMENT

The defining concepts of performance management are presented in Table 1. For comparability, I have tried to present each approach according to the same factors, but here the dimensions and novelty were not clear, as with the performance approaches, so I have only included the **definitions** and **limitations**. This conceptual presentation is also a conceptual typologisation of performance management and performance appraisal, which I have prepared using the PRISMA method. If I am looking for a relationship between performance and performance management, I can identify two important elements: *effectiveness* and *efficiency*. In the health sector, economy is not a top priority, but the efficient management of public funds is the focus of operations.

The three components of performance management are:

- performance,
- performance management,
- benchmarking.

Table 1: Performance management approaches

<i>Author(s)</i>	<i>Key content elements of the definition</i>	<i>Barriers</i>
Cleveland (1989)	<p>There are four criteria that a performance management system must meet.</p> <ul style="list-style-type: none"> <li>• Comparability of individuals,</li> <li>• the availability of individual information.</li> <li>• Human resources system maintenance</li> <li>• and compliance with the administration.</li> </ul>	<p>Competency-based assessment is not considered. It is difficult to compare everyone on the basis of the same elements.</p>
Randell (1994)	<p>Performance measurement and evaluation is a tool that forms the basis for pay and is also used to assess future potential. It is a process whereby the work done by an employee is observed, assessed, recorded and reported on.</p>	<p>The focus is on examining processes; it is not certain that the performance of an employee is uniform.</p>
Neely, Gregory and Platts (1995)	<p>Performance measurement is the process of measuring the effectiveness and economy of an activity.</p>	-
Statterfield (2003)	<p>It is a strategic position, with alignment with the business or organisational strategy as its primary responsibility. He also aligns culture shaping with this.</p>	<p>A well-designed model contributes to the achievement of the organisation's objectives, but not in an individualised way.</p>
Szakály (2005)	<p>A complex multi-factorial process based on performance planning, where the manager receives feedback on the employee, department and organisation being evaluated. On the other hand, it is a feedback process for improvement.</p>	<p>The representation of future possibilities does not take into account possible current errors.</p>

<i>Author(s)</i>	<i>Key content elements of the definition</i>	<i>Barriers</i>	<i>Key content elements</i>
Bokodi (2007)	It is based on the objectives and levels set by the organisation within an agreed framework.	Employees are encouraged to maximise their competences and are not optimised for organisational performance.	
Root, Finna (2008)	Measure the extent and manner of contribution to the performance of the organisation.	The organisational goals appear as the main objective.	
Juhász (2013)	It has three main objectives: <ul style="list-style-type: none"> <li>• feedback,</li> <li>• the effectiveness of selection,</li> <li>• relative merit rating.</li> </ul>	He considers human relationships to be the most important.	
Gulyás (2012)	It is a measure of the performance and perception of an employee in an organisation over a given period of time, which is one of the key elements of the organisation's effectiveness.	It does not show continuity, it focuses on a specific period.	
Government Decree 10/2013 (I.23)	A process for establishing performance based on specific metrics, results and indicators.	In public services, it is not just the specific metric that is important.	

*Source: own editing based on Kucsma (2018)*

## STRATEGY

Because of the complex approach used in my research, in addition to the basics of performance management, it is necessary to examine the strategic trends and schools of thought. The relevance of this line of thought is that performance management, transferred from strategic management, can eliminate self-serving.

For an organisation to fit properly into both its economic and legal environment, it must have a reasonable start-up strategy. Most generally, therefore, a strategy defines the directions of adaptation to anticipated changes and the long-term objectives to be achieved. "*Strategy*" means the long-term objectives set by the company and the ways and means of achieving them. And strategic management is management based on strategy formulation, implementation and feedback" (Bartek-Lesi, et al. 2007 58pp.).

When we talk about health, it is important to mention that the strategy sets out how we intend to contribute to meeting the needs of users and society in each of the organisational units.

I have tried to depict the structure of the strategic process in a way that it is well aligned with the objectives I have set, and I have shown the methodological combinations I have used to investigate them in each phase of my research.



4Figure 1: Structure of the strategy

Source Own editing (Balaton, 2018;Laáb 2007;Veresné Somosi,2013)based on

## STRATEGY AND PERFORMANCE MANAGEMENT

Until the late 1980s, the theoretical literature on strategy formulation and strategic management, and the practical problems it addressed, focused on considerations of competitive advantage, and hence on consumer value. The corporate practice and theoretical literature of the 1990s turns to the value of ownership, exemplified by the work of Rappaport (Rappaport, 2002). What should be mentioned is that many authors try to integrate and link strategy and performance management into their work, based on organizational strategy. This can be seen in the books of

the authors Kaplan– Norton, where the Balanced Scorecard integrated metrics system forms the basis of organizational strategy (Kaplan, Norton 1998, 2002). It can also be seen in the work of Nelly et al. on *Performance Prism* (Bartek-Lesi et al, 2007). In recent years, there has been a welcome increase in the number of research, publications and practical applications of the relationship between organizational strategy and performance.

## COMPARISON OF PERFORMANCE MANAGEMENT MODELS

I have formulated the following elements as criteria for comparability:

- Efficiency
- relevance and core elements of models
- applicability of models
- clarity and consistency.

These elements have been formulated on the basis of my studies, but they need to be supplemented for better comparability. When we come across the word "barrier", we assume that some element or factor stands in the way of something being achieved. Since the performance evaluation models I have used tend to come from the business management field, this implies a constraint and requires a transformation. In the following, I am looking for an answer to the question, if I want to investigate a model comparability or to define a limit, which elements I should add to the elements I have already summarized above. When considering model application, I think one of the fundamental elements is the issue of *playability*, how this factor appears in parallel with implementation and use, what is it that needs to be looked at.

2. Table: Comparison of performance management models

	<i>Efficiency</i>	<i>Relevance of the model, key elements</i>	<i>Model applicability</i>	<i>Clarity and consistency</i>	<i>Playability</i>
<b><i>Balanced scorecard model</i></b>	There is an increasing emphasis on well-structured organisation. It can manage many elements and processes, so the issue of efficiency is paramount.	The organisation can see its processes, see what kind of customers or clients it has. It is aware of the value of its human capital and has a realistic view of its financial situation. Apply perspectives such as financial, customer, operational and learning perspectives.	Through the "balance dimensions", the performance indicators of important areas of the company cannot be kept in balance.	Since performance evaluation is linked to hierarchy levels, and performance expectations are linked to these levels, this shows an uncertainty. Moreover, the issue of consistency is also affected by poor assessment of results. Translating the strategy into indicators. Exploring the impact relationships between indicators	The need for perfection in metrics can make the system opaque.
<b><i>Power prism</i></b>	The focus is on stakeholder satisfaction, so this is also the focus of effectiveness.	Involve stakeholders in the organisational performance review. A central element is stakeholder satisfaction, processes, strategies and capabilities.	Insufficient management of the needs and expectations of and from data subjects.	Performance indicators are not aligned with the needs of stakeholders, but neither are processes and strategies. Random choice of performance indicators linked to internal processes.	The use of indicators that do not track the chosen strategy cannot track it. The use of indicators will thus present a distorted picture within the strategy.
<b><i>Hoshin</i></b>	You can react quickly to new situations and environmental changes.	Corporate staff activities, short reaction time to environmental changes. Response time planning and asset utilisation are also important.	Hoshin management always addresses the critical problems of the company.	The cyclicity of self-assessment does not imply a continuous level of performance. Periodically changing system makes it difficult to monitor.	Inadequate breakdown of objectives/objectives along the internal vertical and horizontal hierarchy.

	<i>Efficiency</i>	<i>Relevance of the model, key elements</i>	<i>Model applicability</i>	<i>Clarity and consistency</i>	<i>Playability</i>
<b><i>EFQM</i></b>	The focus is on efficiency, and to this end they try to make the best use of all existing resources.	The most efficient use of resources is the main objective, reaching stakeholders, pooling resources to increase effectiveness. Focus on capabilities and results.	Commitment has not been established, so the lack of it is rather detrimental to the effectiveness of the model.	Self-assessment is cyclical, hence there are periods of outstanding performance.	There are very subjective factors involved in the construction of the questionnaire and in the textual assessment.
<b><i>CAF</i></b>	Quality is a priority. Implementation and use of TQM. The importance and promotion of self-assessment.	They can tailor the questionnaire (9 criteria and 28 sub-criteria) on which the model is based to their individual needs and organisational characteristics.	It should be applicable in all areas of the public sector, in public services and in public service organisations at European, state, regional and local level.	It should be assessed from several perspectives: the performance of the organisation (its objectives), the citizens/customers, the staff and the social impact.	Although errors in self-perception can be identified, they do not always give a true picture, making it difficult to overcome obstacles.
<b><i>RADAR</i></b>	It analyses the organisation along a strategic process. 3 main elements play a role. Approach, application and evaluation.	Key Performance Indicators are used instead of business performance.	To design the governance (management) system of an organisation.	It assesses the start-up company against a set of criteria, so that individual institutions can be compared against the same criteria.	The assessment is based on a list of criteria defined by the organisation.

	<i>Efficiency</i>	<i>Relevance of the model, key elements</i>	<i>Model applicability</i>	<i>Clarity and consistency</i>	<i>Playability</i>
<b>DEA</b>	Achieve the highest possible output value with the lowest possible input consumption.	Can be used for organisational comparability. Organisation with specified elements.	Continuous monitoring of the efficiency and cost-effectiveness of company operations, providing information for various company decisions.	It is characterised by input and output criteria aligned to strategic guidelines, which serve as a basis for comparability.	To ensure comparability of input and output criteria, a framework for analysis should be provided.
<b>Virginia Performance</b>	Building consensus. Adapting to a planned strategy.	An adaptive system that takes into account the significant or limited influence of the state on each indicator.	Be accessible to local levels, the public and legislators to be properly informed and to make informed decisions on local issues.	The system automatically inserts the necessary data from the Performance Budgeting system and other databases.	The results-based approach implies a fundamental change of approach, which is the task of the current management.
<b>Scotland Performance</b>	To be a constantly evolving yet transparent source for evaluating government performance.	At its apex is an overarching vision, a vision that government action and state resources should serve the goal of becoming an even more successful country become.	From a methodological point of view, it is important to note that both the individual objectives (e.g. economic growth) and the national indicators (e.g. increasing exports) are structured in a coherent way.	From the value factor (positive or negative) assigned to the indicators expresses an assessment of the direction of change.	The indicators are validated by an evaluation team of senior civil servants and analysts.
<b>PUBLIC</b>	Adaptation to organisational baselines, indicators.	Use indicators that can be linked to the basic processes of an organisation.	It is a tried and tested evaluation technique in the public and competitive sectors.	It is used for organisational performance assessment, so it calculates and analyses indicators described by the organisation.	The number of hierarchy levels cannot always be managed properly.

	<i>Efficiency</i>	<i>Relevance of the model, key elements</i>	<i>Model applicability</i>	<i>Clarity and consistency</i>	<i>Playability</i>
<b><i>Objective Matrix</i></b>	Breakdown of targets and related activities to determine snapshots reflecting an overall performance.	The final result, obtained by weighted summation of the values obtained for each indicator, represents the overall performance of the group or individual over the period of the study (e.g. month, year).	A system of tools to measure the strategic objectives of an organisation.	The columns in the matrix are associated with a group or individual goal and each goal is assigned a weighting factor representing the importance of achieving the goal.	It is strategic goal-oriented and does not measure operational activities.

*Source: own editing*

## AUTHORITATIVE CONCEPTS

After a structured review of the literature, I will summarise the approaches and trends that I consider to be the basis of the various methodological approaches.

In examining the trends in performance, a number of concepts and dimensions emerged, of which– I have chosen– the approach that I consider best suited to the study of public service organisations.

**"Performance is a two-dimensional theory, where one dimension is related to the achievement of objectives, some output, some result, and the other dimension is the use of resources to achieve the outputs.** So it's important to define and focus on resources and outputs, so I'll take that as the measure for the rest of this paper." (Wimmer, 2000. 24 pp.)

Whatever the public service organisation, it is important to define objectives with different time horizons, the associated resources used and the outputs that can be linked to them. In my research, I complement this with the service level defined by Kaplan and Atkinson (2000), as I am dealing with healthcare institutions in my studies, and therefore it is authoritative to use Kaplan's complement to Atkinson's approach, as the provision of specialised care and the quality of care is one of the most important outputs for a hospital organisation (Orosz, 2018). In examining the dimensions of performance trends, two elements that are essential to the design and operation of a performance management system were highlighted. This is effectiveness and efficiency. Of course, these two concepts also require a complex overview, and it is worthwhile to define the specifications of the sector under consideration.

Effectiveness is a widely used concept that is related to the following questions:

- What do we measure and with what tools?
- How can the results be used?

In many cases, effectiveness measures outputs, in which case it is always necessary to record two states. The first is the initial state and the associated objectives, the second is a closed period where the success in meeting the objectives can be assessed in the light of the progress made. In searching the literature, I have found a complex concept that I consider to be authoritative in terms of effectiveness. It is as follows:

**Effectiveness:** the **extent to which the** objectives set have been **achieved by** the organisation under review (Gajduschek, 2011b)

Here, as an addition, it can be stated that the above-mentioned status recordings are of course necessary for the definition of the measures described in the concept. The other factor that is also the focus of my research is **efficiency**.

**Efficiency:** **how the** results are achieved at what **cost**. An activity or organisation is more efficient if it achieves **a greater result with the same effort**, or if it achieves the **same result with less effort**. Inputs and results (inputs and outputs) are defined for the public sector. There are cases where it can be quantified in physical terms (number of patients served - number of hours worked) (Gajduschek, 2011b)

I chose this concept because it describes how efficiency can be considered from several angles. The word 'input' is **not necessarily** based on **monetary indicators**, it can be an investment of knowledge or even the number of employees, and there are also cases that can be adapted to the sector I am studying, where units can be defined in physical terms, for example the number of patients treated.

So, to sum up, it is important what **results the organisation aims for** and what **resources** it uses to achieve them. Finally, the output is also important, what effectiveness and efficiency

the organisation can measure. Of course, this must be linked to performance management if we want to determine organisational effectiveness and efficiency.

All authors define performance management **as a process** based on metrics, results and indicators.(Government Decree No.354/2017 XI.29) This concept may be very general, but after adding the above information, we still get a complex definition.

There is only one more basic concept that I have not mentioned - the performance measurement and evaluation system, which to me means a tool to measure the above-mentioned objectives, effectiveness and efficiency, and contributes to the process of quantifying performance.

In economics, the concept of efficiency can be understood from two angles. Efficiency in the health sector can be examined at the macro level, the implementation of which is not the aim of this thesis, and at the micro level, for example in relation to specific patients and specific providers, which is the content of this thesis. It is important to stress that the concept of efficiency is not the same as that of effectiveness. While **effectiveness is based on measuring outcomes, efficiency is based on measuring outcomes and inputs together**. In health economics, different conceptualisations of efficiency are used, technical and cost efficiency are usually linked to health technologies, while allocative and macroeconomic efficiency are understood exclusively at the system level.

- **Technical efficiency:** it is the realisation of the objective at the lowest possible cost in a specific process. It is appropriate to consider this area when it is necessary to prioritise **between** procedures with equivalent health profitability.
- **Cost-effectiveness:** the solution that costs less to achieve the same unit of output.
- Measures to improve **allocative** efficiency aim to ensure that the magnitude of gains in change compensates for losses at the system level, so that the health gains at the population level are maximised.
- **Macroeconomic efficiency** is a measure of the carrying capacity of a given farming year.

### III. New and novel findings of the research

My primary aim in writing this thesis was to show that performance management in the public sector, and specifically in public hospitals, is as much an area of focus as it is in the competitive sector. My research sample consisted of Hungarian public hospitals with 600-1250 beds, which I filtered from the KSH database (www.ksh.hu). These institutions are listed in the following table:

3. Table: Names and abbreviations of hospitals surveyed

Hospital name	Summary
Csolnoky Ferenc Hospital	CSFK
Dr. Albert Kenessey Hospital and Outpatient Clinic	CAC
North Central Buda Centre, New St. John's Hospital and Specialist Clinic	SJK
Count István Tisza Hospital	GTIK
Markhot Ferenc Teaching Hospital and Clinic	MFK
Flór Ferenc Hospital of Pest County	PFFK
Erzsébet Teaching Hospital and Rehabilitation Institute in Sopron	SEK
Saint Borbala Hospital	SBC
Saint Imre University Teaching Hospital	SIK
St Lazarus County Hospital	SLK
St Pantaleon Hospital-Rehabilitation Institute	SPK
Toldy Ferenc Hospital and Clinic	TFK
Balassa János Hospital of Tolna County	TBJK
Uzsoki Street Hospital	UK
Szent Rafael Hospital of Zala County	SRC
Bajcsy-Zsilinszky Hospital and Clinic	BK

*Source Own editing*

My study period covers a 5-year period, from 2017 to 2021. If we take the chapters of my thesis in order, we can see that I did not only deal with performance management, as the design and adoption of a model is much more complex than that. The public sector is more specific than that, so my primary task was to look at the organisation itself. To provide answers to what it is that determines performance. As we have seen in the initial part of my thesis, there have been a myriad of definitional approaches that have evolved and changed over the years. If you want to define the performance of an organisation, there will be a myriad of indicators and areas of investigation. Thus, my primary task, following a review of the literature, was to examine institutional strategies, as alignment with these is one of the key objectives of adapting the framework.

#### RESEARCH QUESTIONS AND RESULTS

K1: In the case of the hospitals studied, is it possible to conclude that the performance management system is a necessary and sufficient condition for its derivability from the strategy?

Strategic planning is very important, as it allows you to plan resources in a more focused way. Developing a strategy is essential for designing a performance management system. The hierarchy of objectives that I have outlined (Figure 5) also contributes to the development and

use of a performance management framework model, as it is important not only to ensure that an institution is effective, but also to ensure that it meets societal needs at a high level



5Figure 1: A possible hierarchy of objectives for public service enterprises

Source: own editing (based on Kocziszky-Veresné Somosi 2015)

The main objective is the GoodLife Impact, as it is necessary to provide a high quality service to society, but what does that mean? During my research I set the goal to assess what this could mean from a user or patient perspective, however, repeated attempts were not successful as everyone defined this element(s) differently. In my opinion, the most important are quality health promotion and health restoration services (Kocziszky et al. 2015).

In addition, effectiveness and efficiency were also included, although these concepts are very general, according to Gajduscek (2011), effectiveness is a measure of how well the organisation has achieved its objectives. Efficiency, on the other hand, is nothing more than the amount of resources that are put into the goals, i.e. the effort required to achieve these goals. Thus, these concepts are also the key ones in my research (Gajduscek, 2011).

The third level includes both soft and hard factors, which can be associated with the development of an indicator system, so these factors are also important in the target hierarchy.

- Limited use of resources: public service bodies have limited resources, as they are publicly funded, but it is worth noting that in this sector the ultimate goal is not to maximise profit, but as they are publicly funded, they need to focus on efficient and economical operation (Csath, 2016).
- Lean thinking and approach is very important, as optimising the sequence of care, examining patient care pathways is important and essential for an institution.
- Raising service standards: although we are talking about public service organisations, one of the characteristics of public service organisations is that their clientele is the whole population, so they are not only supposed to serve a certain group of people, but almost everyone comes into contact with this type of organisation in some way during their lives (Lannert, 2004).
- Leveraging organisational capabilities, as performance management systems focus primarily on these elements, this should also be a priority, as it is important in defining the vision and achieving the elements defined at the first two levels.

The ***K1 research question is not complete in*** this form, as there are still many factors that influence performance management, so strategy is a necessary but not sufficient condition for the development of a performance management system-

**K2 Do the institutions surveyed apply the methodological recommendations systematically based on the literature?**

The methodological recommendations have been examined in terms of their fit with the framework models and are well supported by the literature presented. This was supported by the 11 performance management models compared.- These are generic performance management models, so the specificity of the organisation is not always taken into account, so a thorough customisation is always necessary when using them.- However, with methodological combinations they provide an excellent basis for building a framework model, so the ***answer to my research question K2 supports the inclusion of methodological elements in the model.***

My research questions K1 and K2 and the answers to them helped me to compile my findings T1 and T2, which are:

***T1: A combination of goal-driven strategic guidelines and related performance indicators is a necessary element of the performance management framework of a publicly funded hospital.***

***T2: All the methods identified in the literature research– can form the basis for the development of a performance management system, taking into account the specificities of the organisations–included in the sample. The appropriate quantitative, qualitative selection of the indicators included in the guidelines can be determined by the methodology(ies) used.***

I also chose **RADAR** methodology to verify research questions K3, K4.

**K3: Have the national guidelines been used as a benchmark for the strategic planning of the institutions?**

Research question K3 examines national-level policies. As part of the TÁMOP 6.2.5.-B-13/1-2014-0001 project "*Improving organisational effectiveness in the health care system*", a *strategic planning manual* was compiled as a basis for answering this research question. Some of my RADAR analyses were also linked to these documents, which provide a guideline for institutions to successfully lay the foundations for strategic leadership. Already in the purpose and methodology of the manual, the principle is clearly stated that it is a guideline for public hospitals. It is a practical guide or procedural instruction that is intended to be accessible and logical for the user and to provide a step-by-step guideline that not only presents the tasks assigned, but also provides the user of the manual with useful advice and practical experience.

4Table 1: Radar evaluation

<b>RADAR ASSESSMENT AND MANAGEMENT TOOL</b>						
Accessed at	0% no evidence or anecdotal	25% few Evidence available	50% there is evidence	75% there is clear evidence	There is 100% extensive evidence	Comment
<b><i>Established</i></b>						
Mission, mission statement, vision statement	UK, BK, SBK, TBJK, SPK	SIK,SLK	SJK, KAK, GTIK	MFK CSFK, SEK,SRK	TFK,PFT	<ul style="list-style-type: none"> <li>• lack of detail</li> <li>• mission, lack of vision description</li> </ul>
The link between vision and strategy	UK, BK, SBK, TBJK, SPK	SIK, SLK,	SJK, KAK, GTIK	MFK, CSFK, SEK, SRK	TFK, PFTK	
A time horizon for the development of the hospital's Vision (vision)	UK,BK, SBK, TBJK, TFK, PFTK, CSFK, SJK	GTIK,SIK,SP K	SRC		KAK, MFK, SEK, SLK,	<ul style="list-style-type: none"> <li>• not detailed</li> <li>• Frequent mention of 5 years</li> </ul>
Does the hospital have a written public strategy	TBJK,	BK, SBK,SPK	CSFK, SJK,GTIK,SEK, SIK, SRK	PFTK	UK, KAK, MFK, SLK,TF K	<ul style="list-style-type: none"> <li>• not all public</li> <li>• staff available for</li> </ul>
Preceded by a situation analysis of the strategy	BK, SBK, TBJK, PFTK, SJK	UK, CSFK, GTIK, SEK	KAK, SLK, SIK, SPK	MFC,SRC	TFK	<ul style="list-style-type: none"> <li>• none risk analysis</li> </ul>
<i>External factors</i>	BK, SBK, TBJK, PFTK, SJK	UK, CSFK, GTIK, SEK	KAK, SLK, SIK, SPK	MFC, SRC	TFK	<ul style="list-style-type: none"> <li>• situation analysis</li> <li>• environment Factors</li> </ul>
<i>Technology</i>	BK, SBK, TBJK, PFTK, SJK	CSFK, UK, GTIK, SEK	KAK, SLK, SIK, SPK	MFC, SRC	TFK	<ul style="list-style-type: none"> <li>• technology Factors</li> </ul>
<i>Resource needs</i>	CSFK, MFK BK, SBK, TBJK, PFTK, SJK,UK	GTIK,SIK, SLK, SPK	KAK, SEK	SRC	TFK	<ul style="list-style-type: none"> <li>• includes only the number of staff</li> </ul>

						<ul style="list-style-type: none"> <li>the links cannot be identified</li> </ul>
<i>Resource availability</i>	BK, SBK, TBJK, PFTK, SJK	UK, SLK, SPK, GTIK	CSFK, KAK, SEK, SIK	MFC, SRC	TFK	<ul style="list-style-type: none"> <li>human resources situation</li> <li>workforce grouping</li> <li>staffing</li> </ul>
<i>Process investigation process structure</i>	MFK, BK, SBK, TBJK, PFTK, SJK	UK, SLK, SPK, GTIK	CSFK, KAK, SEK, SIK, SRK	MFK	TFK	<ul style="list-style-type: none"> <li>Questionnaire on 3 timezone</li> </ul>
<i>Includes risk analysis</i>	MFK, CSFK, BK, SBK, TBJK, SRK, PFTK, SJK	UK, SEK, SLK, SPK	KAK, GTIK, SIK	TFK,		<ul style="list-style-type: none"> <li>no such reference up to the society on your health situation</li> </ul>
<b>Integrated</b>						
Indicate timeframes for implementing and measuring the strategic elements developed by hospitals (which elements I want to implement and when)	CSFK,SJK, PFTK, BK, UK, SBK, TBJK, TFK,	KAK,GTIK, SIK, SPK	MFK, SEK, SLK, SRK			<ul style="list-style-type: none"> <li>no timeline, GANTT chart</li> </ul>
There is an elaborated strategy map with strategy objectives (completeness of supporting processes and healing processes)	CSFK SJK, PFTK, BK, UK, SBK, TBJK,	GTIK, SIK	KAK, SPK, MFK, SEK, SLK, SRK		MFK,TFK	<ul style="list-style-type: none"> <li>strategic map</li> <li>complexity</li> </ul>
Examination of stakeholders' expectations has been done (Ministry, OEP, etc. )	CSFK,SJK, PFTK, BK, UK, SBK, TBJK, TFK,	MFK, KAK, GTIK, SIK, SEK, SPK	SLK, MFK, SRK			<ul style="list-style-type: none"> <li>Legal compliance, expectations not specified</li> </ul>
<b>Composite value of approach</b>						

<b>Introduced</b>						
Resource needs are ensured for implementation	UK, BK, SBK, TBJK, TFK, PFTK, CSFK, SJK, SIK,	GTIK, SEC, SPC	KAK, SLK, SRK	MFK		<ul style="list-style-type: none"> <li>human assignment only follow up 1</li> </ul>
Do you have the right methodology for the strategy you have developed	UK, BK, SBK, TBJK, PFTK, CSFK, SJK, SIK	GTIK, SEC, SPC	KAK, SLK, SRK		MFK, TFK	<ul style="list-style-type: none"> <li>manual</li> </ul>
<b>Systematic</b>						
The strategy has been communicated externally, stakeholders have been informed	SJK, CSFK, PFTK, BK, SBK, TBJK,	GTIK, SEK, SIK, SPK	SLK, SRK	MFK, KAK	UK, TFK	<ul style="list-style-type: none"> <li>no external information</li> </ul>

The internal stakeholders of the strategy have been informed	UK, BK, SBK, TBJK, SRK	TFK, PFTK, CSFK, SJK, KAK, GTIK, SIK, SPK	SEK, SLK	MFK		<ul style="list-style-type: none"> <li>carry out a survey, management meetings</li> </ul>
Has the strategy management process been coordinated?	UK, BK, SBK, TBJK, PFTK, SPK	CSFK, SJK, GTIK, SEK, SIK,	SRC	MFK, KAK, SLK	TFK	
To what extent is the process of developing the strategy Internal time-phased approach	MFK, SJK, CSFK, PFTK, BK, UK, SBK, TBJK, GTIK, SEK, SIK, SPK		KAK, SLK, SRK		TFK	<ul style="list-style-type: none"> <li>time slots 3 types</li> </ul>
Action plans defined, developed	SJK, CSFK, PFTK, BK, UK, SBK, TBJK, TFK, SEK, GTIK,		SIK	KAK, SLK, SRK	MFK, TFK	<ul style="list-style-type: none"> <li>goals- resource time alignment</li> </ul>
<b>Application summary</b>						
Evaluation and <i>refinement</i>	0% no evidence or anecdotal	25% few Evidence available	50% there is evidence	75% there is clear evidence	There is 100% extensive evidence	
<b>measurement</b>						
There is a complex system of indicators for measuring the organisation, documented	CSFK, PFTK, BK, UK, SBK, TBJK, TFK, GTIK, SEK, SIK, SPK	SJK, SLK,	KAK, SRK	MFK		<ul style="list-style-type: none"> <li>performance measurement indicators (BSC)</li> </ul>
Appropriate organisational structure examined in the strategic analysis (not optional)	SJK, CSFK, PFTK, BK, UK, SBK, TBJK, GTIK, SEK, SIK, SPK	MFK,		KAK, SLK, SRK	TFK,	<ul style="list-style-type: none"> <li>number of staff inquiry</li> <li>No structural representation</li> </ul>
Performance management is part of the strategy implementation	UK, BK, SBK, TBJK, TFK,	CSFK, SJK, GTIK, SPK, SEK	PFTK, SIK, SRK	KAK, SLK	MFK	<ul style="list-style-type: none"> <li>Performance measurement dimensions (BSC) to be mentioned in the questionnaire</li> </ul>
<b>Development, learning</b>						
critical issues have been addressed in the strategy preparation process	UK, BK, SBK, TBJK, CSFK,	MFK, SJK, GTIK, SPK, SEK	PFTK, SIK, SRK	KAK, SLK	TKF	<ul style="list-style-type: none"> <li>the number of problematic cases is not highlighted</li> </ul>

there are corrections or interventions that can be linked to problematic cases	MFK,CSFK, BK, UK, SBK,TBJK,GTIK,SEK, SIK, SPK	PFTK, SJK	SLK, SRK	KAK,	TFK	<ul style="list-style-type: none"> <li>does not deal with these cases</li> </ul>
set the timing of the strategy review	MFK,SJK, CSFK, PFTK, BK, UK, SBK, TBJK, SRK, TFK, SPK, SIK, SEK, GTIK	KAK, SLK				<ul style="list-style-type: none"> <li>lack of measurement frequency</li> </ul>
existing organisational processes are examined in the strategy	SJK, CSFK, PFTK, BK, SBK, TBJK, GTIK, SEK	UK,SIK, SPK	MFK, SLK, KAK, SRK		TFK	<ul style="list-style-type: none"> <li>questionnaire feedback</li> </ul>
There is internal staff involvement in the evaluation of the implementation of the strategy	SJK, CSFK, PFTK, BK, UK, SBK, TBJK, GTIK, SPK	SEK, SIK	SRC	MFK, KAK, SLK	TFK	<ul style="list-style-type: none"> <li>the existence of regular meetings</li> </ul>
There is external staff involvement in the evaluation of the implementation of the strategy	MFK, SJK, CSFK, PFTK, BK, UK, SBK, TBJK, GTIK, SIK, SPK		KAK, SLK, SEK, SRK		TFK	<ul style="list-style-type: none"> <li>mention of external project specialist</li> </ul>
Validation of results envisaged	SJK, CSFK, PFTK, BK, UK, SBK, TBJK, SPK,GTIK, SIK	SEK,		SRC	MFK, TFK, KAK, SLK	<ul style="list-style-type: none"> <li>APPLICATION OF THE PICTURE</li> </ul>
Form of documentation is based on fixed criteria	UK, BK, SBK, PFTK, SJK, GTIK, SEK, SPK	CSFK	TBJK, SRK	KAK, SLK, SIK	MFK, TFK	<ul style="list-style-type: none"> <li>APPLICATION OF THE PICTURE</li> </ul>
<b>Assessment and refinement summary</b>						
Summary of endowments						

Source Own editing

Based on the assignments, I aggregated the values for each institution, which are presented in Table 5.

After assigning each result, I calculated unweighted averages based on the three main criteria of **approach, application and evaluation, refinement**. The zero values in the table clearly indicate that the criterion was not qualifiable for the hospitals I examined, based on the documentation I reviewed.

5.Table : RADAR average results

	Accessed at	Apply at	Evaluation refinement
SJK	0,428571429	0,28571429	0,363636364
CSFK	1,071428571	0,28571429	0,090909091
PFTK	0,785714286	0,14285714	0,454545455
BK	0,071428571	0	0
UK	0,714285714	0,57142857	0
SBC	0,071428571	0	0
TBJK	0	0	0
TFK	3,071428571	3	2,909090909
SRC	2,285714	2,714286	2,909091
MFK	2,642857143	2,85714286	2
CAC	2,142857143	2,28571429	2,636363636
GTIK	1,285714286	0,71428571	0,181818182
SEK	1,928571429	0,85714286	0,727272727
SIK	1,5	0,85714286	0,818181818
SLK	1,857142857	2	2,454545455
SPK	1,142857143	0,57142857	0,272727273

*Source: own editing*

Some of the institutions surveyed did not participate in the project, but still scored highly in the RADAR analysis. Thus, it can be said that this guideline provides a framework for the preparation of a strategy which makes it much easier to plan and implement the strategic process, the individual management tasks and, last but not least, effective leadership and performance management.

In conclusion, I found that institutions that adopted the guidelines with openness and applied their elements were more successful in the area of strategic management, but I found practically partial solutions other than these guidelines, and therefore **I consider research question K3 to be justified**.

K4: To what extent have strategic planning guidelines been introduced and applied at national level?

So, to my research question K4 on the extent to which the implementation of each policy has been done, I can say that it is not fully done, as the average percentage is lower compared to the 100% implementation, but close to 50% of the policies have been integrated into the start-up strategy. It is worth mentioning that, if we compare it with the other institutions, it can be

said that the first step has been carried out very effectively, as the strategy according to the directive has been developed in each institution, but the implementation still needs to be refined.

In conclusion, I found that institutions that adopted the guidelines with openness and applied their elements were more successful in the area of strategic management, but I found practically partial solutions other than these guidelines, and therefore **I consider research question K3 to be justified**. Based on my sample of hospitals studied, I consider the implementation of the guidelines and the application of the methodological support provided by the manual to be insufficient, i.e. **my research question K4 is not justified**.

Answering my research questions K3, K4 led to theses T3a and T3b, which are:

***T3a: The RADAR methodology will provide a measurable way to characterise the strategic management of publicly funded hospitals and help support the introduction and improvement of policy-based operations at national level.***

***T3b: The RADAR method is suitable to support the adaptation of the national guidelines at the organisational level based on the strategic assessments of each hospital studied.***

One of the most common concepts when using a performance management system is efficiency, so this is the focus of my research questions K5, K6.

**K5: How can the differences in efficiency in Hungarian state-run hospitals with 600-1250 beds be described?**

The differences between institutions are illustrated in Table 6. The DEA methodology displays a so-called relative efficiency, i.e. it calculates the ranking of the institutions under study (in this case, publicly funded hospitals with 600-1250 beds) using the same indicators within a given framework.

The DEA methodology has provided guidance on the question of effectiveness. The measurement of the desired efficiency based on the mathematical calculations was the primary measure, and the results of this were positive for research question K5.

**K6. What is the relationship between goal-oriented thinking and efficiency in the hospitals included in the research?**

I accept as a basic principle of my research question K6 that an organisation is effective when it is operating efficiently, so that a complex analysis of this can be carried out by reviewing the results of RADAR and DEA together.

6. Table: Summary of DEA and RADAR results

Hospitals	DEA					Results	RADAR		
	2017	2018	2019	2020	2021		Approach	Application	Evaluation
Bajcsy-Zsilinszky Hospital	1	1	1	1	1	Do not justify	0,071428571	0	0
Csohoky Ferenc Hospital, Veszprém	0,9969	0,99111	0,97158	0,90299	1	Do not justify	1,071428571	0,2857143	0,285714
Dr. Kenessey Albert Hospital, Balassagyarmat	1	1	1	1	1	Confirm	2,142857143	2,2857143	2,636364
Észak-Közép-budai Centrum, Új Szent János Hospital	1	0,99461	0,98049	1	0,93683468	Do not justify	0,428571429	0,2857143	0,363636
Gróf Tisza István Kórház, Berettyóújfalu	1	1	1	1	1	Partially justify	1,285714286	0,7142857	0,181818
Markhot Ferenc Hospital, Eger	1	1	1	1	1	Confirm	2,642857143	2,8571429	2
Pest Megyei Flór Ferenc Hospital, Kistarcsa	1	1	1	1	1	Do not justify	0,785714286	0,1428571	0,454545
Soproni Erzsébet Hospital and Rehabilitation Institute	1	1	0,96641	0,98475	0,996414218	Do not justify	1,928571429	0,8571429	0,727273
Szent Borbála Hospital, Tatabánya	1	1	0,98151	0,98149	0,99770351	Do not justify	0,071428571	0	0
Szent Imre Hospital	1	1	1	1	1	Do not justify	0,428571429	0,2857143	0,363636
Szent Lázár County Hospital, Salgótarján	1	1	1	1	1	Partially justify	1,5	0,8571429	0,818182
Szent Pantaleon Hospital Dunaujváros	1	1	1	1	1	Confirm	1,857142857	2	2,454545
Toldy Ferenc Hospital, Cegléd	1	1	1	1	1	Partially justify	1,142857143	0,5714286	0,272727
Tolna Megyei Balassa János Hospital	0,9948	0,98441	0,90435	0,92715	1	Do not justify	0	0	0
Uzsoki utcai Hospital	1	1	1	1	1	Do not justify	0,714285714	0,5714286	0
Zala Megyei Szent Rafael Hospital	0,99406	0,9921	0,94931	0,96372	0,999425692	Do not justify	2,285714	2,714286	2,909091
		all years efficient			Criterion	Case number	0-1 value	Low value	
		Inefficient			Confirm	3	1- 1,8 value	Medium value	
		4 years inefficient			Partially justify	3	1, 8 - 4 value	High value	
		3 years inefficient			Do not justify	10			

Source : Own editing

A comparison of the results of the RADAR and DEA methodologies is presented in Table 6. An important task of the table is to present the background to my research question K6, in which I focus first of all on the relationship between the strategic and operational effectiveness of the business. The strategy is based on the application of the central guidelines, so it is interesting to observe in this table how the comparison between the indicators included in the research and the strategy meets this criterion.

In the table I have highlighted the results in three colours, with the following meaning.

The threshold for DEA effectiveness is 1, i.e. if the result is 1, the organisation is effective, if the result is below 1, it is not relative effectiveness. The RADAR results indicate that a value below 1 is low, between 1 and 1.8 is medium, and above 1.8 is high, which is calculated as a high value for the start-up strategy of the institution under study.

Highlighted in *green*, both DEA results and RADAR results show effectiveness, so the effectiveness of these institutions can be assumed. As for the institutions marked in *yellow*, they can be considered as partially verified, possibly with high efficiency, but with strategic results below the required level. The institutions marked in *red*, on the other hand, do not reach the desired level either in terms of efficiency or RADAR. 19 % of the organisations included in the study -- marked in green, where the application of the central guidelines is consistent, i.e. there is a link between RADAR and DEA methodology. For 63% of the institutions, i.e. 10 institutions, there is no link between strategy and efficiency indicators. This raises a serious governance problem.

***T4a: National-level guidelines are a good way to improve the operational efficiency of hospitals.***

***T4b: In the organisation under review, where a detailed strategy is in place, formulated along country-level guidelines, there is a higher level of alignment between efficiency and performance.***

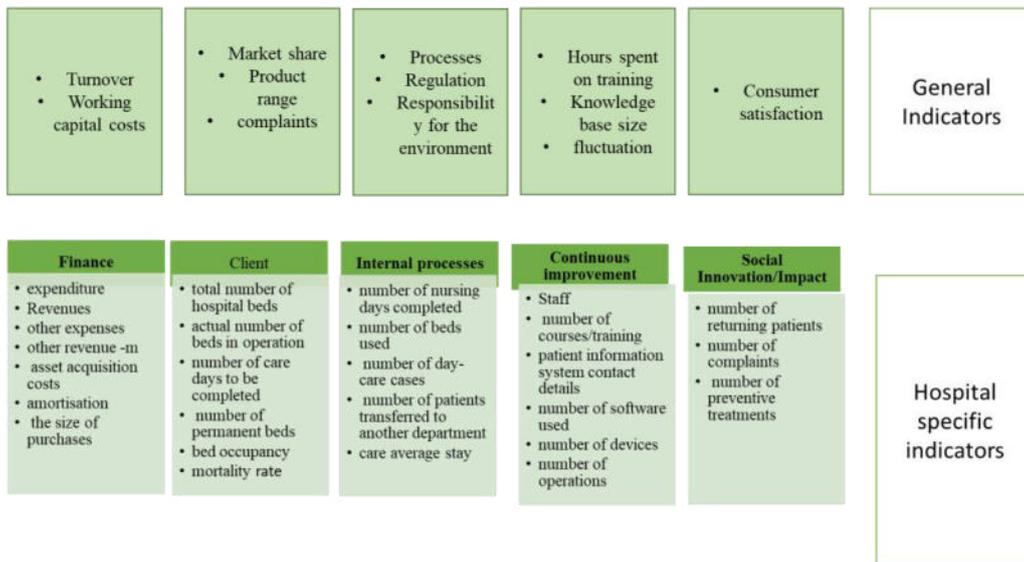
***T5: The combined use of RADAR and DEA methods under specific conditions is an innovative approach that provides an opportunity for organisational performance management that incorporates operational effectiveness from a strategic perspective.***

Finally, I addressed a research question related to the framework model.

**K7: Is there a combination of methodologies that can be used to develop a hospital performance management framework model?**

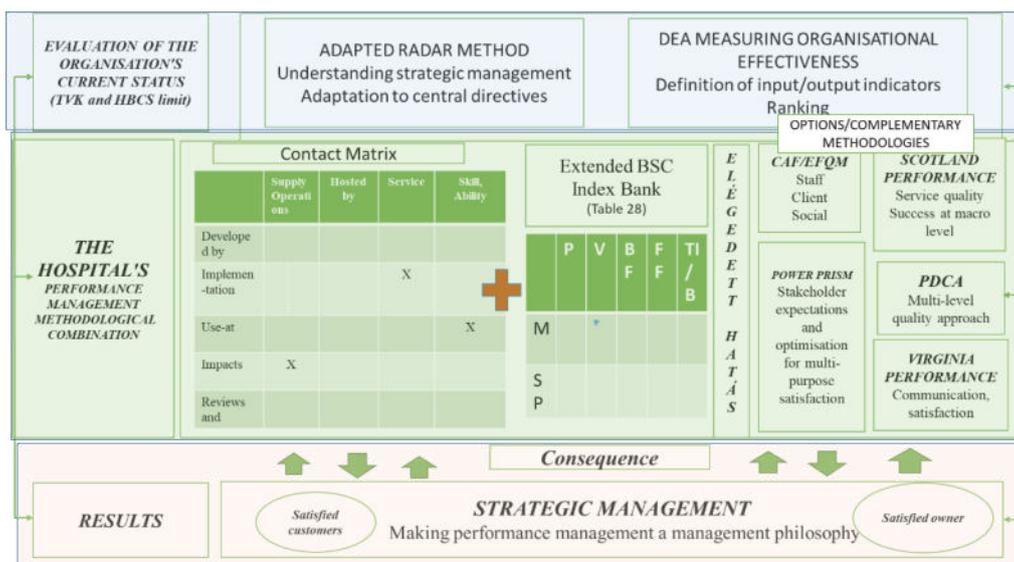
I identify with the idea that the "indicator bank" I have developed will help a hospital to define its organisational performance indicators. The indicator bank I have created provides options and allows for customisation for individual institutions.

Due to the nature of the health service under review, the development of a performance management system also places a strong emphasis on the pursuit of social satisfaction. This justifies the integration of new elements compared to corporate practice. Figure 6 presents both general and hospital-specific indicators.



6 Figure: Indicator bank  
Source Own creation

One of the aims of my research was to develop a framework model (Figure 7). The framework model gives the institution the possibility to develop a specific solution from the methodological recommendations. Within this logic, institutions can even develop their own system by integrating different methodologies. The research question was answered using a combination of methodologies based on a comparison of 11 models. The framework model gives the institution the possibility to develop a specific solution from the methodological recommendations. Within this logic, institutions can even develop their own system by integrating different methodologies.



7Figure HPSC (Hospital Public Performance Score Card) Framework Model : Source: own edit

***T6: The two-tier framework model provides an opportunity to develop a combination of performance management methods that can be derived from the strategic objectives of the institution under study and ensure effective operation. The institutional specifications can be formed from the complementary methodological elements of the framework model.***

At the beginning of my thesis, I asked two general research questions that helped me to start my research. These were the following questions:

*A1: How can the specification of performance management in the public sector be described?*

*A2: How and by what methods can organisational performance be measured in the public sector, and how can the effectiveness of measurements in each sector be characterised?*

In my thesis, I have tried to explore and present these basic research issues, because this area is not negligible, as both society and the composition of needs and the economy are changing, so there is an increased validity of measuring the public sector. However, this sector is a specific area, as it cannot always realise its successes as profits. I have also made general methodological recommendations and, at the end of my work, I have created a model called HPSc (Hospital Public Performance Scorecard).

Figure 8 summarises the research questions and theses of my thesis.

K1: In the case of the hospitals studied, can it be stated that the derivability from the strategy is a necessary and sufficient condition for a performance management system?	✗	T1: A combination of goal-driven strategic guidelines and related performance indicators is a necessary element of the performance management framework of a publicly funded hospital.
K2: Do the institutions surveyed apply methodological recommendations systematically based on the literature?	✓	T2: All the methods identified in the literature research can form the basis for the development of a performance management system, taking into account the specificities of the organisations in the sample. The appropriate quantitative, qualitative selection of the indicators included in the guidelines can be determined by the methodology(ies) used.
K3: Have the national guidelines been used as a benchmark for the strategic planning of the institutions?	✓	T3a: The RADAR methodology will provide a measurable way to characterise the strategic management of publicly funded hospitals and help support the introduction and improvement of policy-based operations at national level. T3b: The RADAR method is suitable to support the adaptation of the national guidelines at the organisational level based on the strategic assessments of each hospital studied.
K4: To what extent have strategic planning guidelines been introduced and applied at national level?	✗	T4a: National-level guidelines are a good way to improve the operational efficiency of hospitals.
K5: How can the differences in efficiency in Hungarian state-run hospitals with 600-1250 beds be described?	✓	T4b: In the organisation under review, where a detailed strategy is in place, formulated along country-level guidelines, there is a higher level of alignment between efficiency and performance.
K6: What is the relationship between goal-oriented thinking and efficiency in the hospitals included in the research?	✗	T5: The combined use of RADAR and DEA methods under specific conditions is an innovative approach that provides an opportunity for organisational performance management that incorporates operational effectiveness from a strategic perspective.
K7: Is there a combination of methodologies that can be used to develop a hospital performance management framework model?	✓	T6: The two-tier framework model provides an opportunity to develop a combination of performance management methods that can be derived from the strategic objectives of the institution under study and ensure effective operation. The institutional specifications can be formed from the complementary methodological elements of the framework model.

8. Figure 1: Summary of results

*Source: own editing based on own research*

## **Applications of results, further research directions**

In the context of this research, I focused on the challenges of managing healthcare institutions. My research had its difficulties, as in many cases the data was limited and the process took longer. It was necessary to filter by the parameters of the institutions in order to have the same research conditions.

The possible directions for the continuation of my research can be interpreted in terms of theoretical methodological development on the one hand, and the way it can be applied in practice on the other. Accordingly, my future research directions are:

- To support a change management process that allows performance management to become a management philosophy through the framework model developed.
- Extension of the established performance management framework model to healthcare institutions with specialised activities and to institutions of a different size than my sample. Further theoretical extension to examine the applicability of the methodology to the non-health sector.
- Strengthening the strategic management of the health sector and its evaluation through RADAR for all health care organisations.
- The relative ranking of efficiency, which can be determined using the DEA method, can be used to think through targeted improvements and resource allocation issues in a homogeneous sample.
- Expanding the set of performance indicators that can be used in hospitals, with additional specifications that will allow the development of a set that measures the real processes of the healthcare institution under study.
- A further research task for me is to study good practices, both national and international, and to collect these good practices in a handbook, as this could be a model for institutions to use both in introducing the model and in overcoming possible obstacles.

My aim is to carry out studies that, when fitted, will tell us that a framework model is being developed that can handle the specifications of all sectors of the public sector. The indicator bank that I have developed can be of help to hospitals, as it can be associated with their own specificities for the implementation and measurement of any relative efficiency and performance management system.

My further goals are to further extend the model and to incorporate specific indicators into the model and to assign them to efficiency studies.

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