

# Who has more developed performance measurement in Croatia? Public hospitals or higher education institutions

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*A scientific paper*

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## **WHO HAS MORE DEVELOPED PERFORMANCE MEASUREMENT IN CROATIA? PUBLIC HOSPITALS OR HIGHER EDUCATION INSTITUTIONS**

### ***ABSTRACT***

*Public hospitals and higher education institution are an important part of the Croatian public sector for several reasons. The importance of the services they provide is exceptional, and these services are used by most of the population. According to that, the financing or the allocation of significant budget funds is also related to these two sectors. Since they use budget (public) funds, it is important how they manage them. The paper aims to investigate the extent to which managers of public higher education institutions and hospitals use performance indicators as a tool for effectively managing limited public resources. The objectives will be achieved by conducting a survey and analysis of results. A survey questionnaire was prepared and sent to all Croatian public higher education institutions and hospitals at the beginning of 2018. The questionnaire answered 41% of higher education institutions and 36% of the hospitals. Although both types of institution represent budgetary users, there are similarities, but also differences in their organization, the way they perform activities and the way of allocating budget funds. Results show that there are some differences in usage of performance measurement instrument between public hospitals and higher education institutions in Croatia, but in the most aspects they are the same. Higher education institutions are more aware of the importance of strategic planning, and their managers have more developed information needs. However, in other aspects like performance indicators development, comparison and reporting of performance measurement results, usage of performance measurements for decision-making purposes and managers' opinions about the importance and possibilities of their use in business processes are similar. In addition to empirical research, the analysis of relevant world literature from the field of performance measurement of public hospitals and higher education institutions will be carried out. Also, the management system and the financing of these institutions in the Croatian public sector will be explored and presented.*

**Key words:** *performance measurement, management, higher education institution, hospital, Croatia.*



## 1. Introduction

Budget expenditures for education in Croatia amount 4.7% of GDP (higher education is up to 1%), which is in line with EU average of 4.9% of GDP (Sonje et al., 2018, 2317, Eurostat, 2017). Government spending on health care in our county is about 6.2% of GDP per year (Eurostat, 2019) and the EU average is 7% of GDP. It is obvious that the level of public expenditure in these two sectors is high, and the user's needs are even larger. Because of the limited budgetary possibilities, one of the main questions that arise is how effective is the use of these funds, and how successful is the business management of these budgetary users?

The challenges that public hospitals and higher education institutions face around the world include: delivering quality service to everyone who is entitled to it, raising awareness of different stakeholders needs for a high quality and comprehensive information about services and institutions as a whole, contribution to regional development, increasing costs with limited budget resources, the need for greater accountability and trust (Brandao et al., 2013, 392, OECD, 2008, 12, Johnstone, 2009, 1, Zalec, 2013, 67, Smith, 2008).

To meet many challenges and ensure efficient and effective management of the business, public managers must think strategically and entrepreneurially (Taylor and Machado, 2006, 138, Newton, 2003). In their management process, to make successful decisions, they need to move from the traditionally bureaucratic system to cost monitoring, output control and performance measurement. They should rely on entrepreneurial business principles according to the philosophy of New Public Management (Jeurissen et al., 2016, 16, Pollit et al., 2007, Ocampo, 2000, Hood, 1991). The public value paradigm is driven by customer demands in a way that the public sector creates generate trust or fairness, not only through outputs but also through processes, services, laws regulation and other actions (O'Flynn, 2007, Kelly et al. 2002).

Performance management can be defined as the process of defining goals, selecting strategies to achieve those goals, allocating decision rights, and measuring and rewarding performance (Verbeeten, 2008, 430). Performance management and measurement systems can have different roles in public sector organisations. For Hansen and Van der Stede (2004), performance management is useful in operational planning, performance evaluation, communication of goals and strategy formation. Henri (2006) argues performance measurement system used for: monitoring, attention focusing, strategic decision making and legitimization. Performance management and measurement system include systematic, regular and comprehensive capturing, measurement, monitoring and assessment of crucial aspects of organisational and individual performance through explicit targets, standards, performance indicators, measurement and control systems (Diefenbach, 2009). Performance measurement provides the basis for an organisation to assess how well is progressing towards its predetermined objectives, helps to identify areas of strengths and weaknesses, and decides on future initiatives, intending to improve organisational performance (Purbey et al., 2006).

According to McIntyre (2001, 9), the first attempt of performance measurement in health care system occurred more than 250 years ago. Technological and medical advances, the complexity of customer requirements, well-informed healthcare system stakeholders and an ageing population have made it difficult to manage hospital institutions recently (Elg et al., 2011). To meet the many challenges of successful management, healthcare institutions are struggling to find adequate governance models. Many professionals recognize performance measurement as an option in various parts of the system for public transparent reporting, resource funding, administrative control, development and improvement of clinical practice (Elg et al., 2013). Studies report that public disclosure of the results of hospital performance measurement encourages quality improvement activities (Hibbard et al., 2003). Rahimi et al.

(2016) propose Balanced Scorecard model as suitable for evaluating and comparing hospitals' performance.

Public higher education institutions to meet the many challenges of today, such as the budget constraints, demand for increasing the quality of public services, internationalization and competitiveness, the need for greater accountability because of increased autonomy and deregulation institutions, have to be publicly accountable and to show how they put value on money (Campbell and Rozsnyai, 2002, Matei, 2009, Coste and Tiron-Tudor, 2015). Performance indicators are required to improve the quality, accountability and performance of higher education institutions. These indicators ensure the performance of university operating, encourage each university to improve its' disadvantages, and ensure university competitiveness (Chen et al., 2009). There have been a lot of studies about use and consequences of performance indicators in European universities (Lewis et al., 2007, 204) like in UK (Melo et al., 2010, Ball and Wilkinson, 1994), Australia (Guthrie and Neumann, 2007, Taylor, 2002) and New Zealand (Peters, 1992).

## **2. Management and financing of public hospital and higher education institutions in Croatia**

This chapter will discuss the basic characteristics of the activities and financing methods in the higher education and health care system in the Republic of Croatia. Higher education and health care system in Croatia represent the area of public interest in which the public sources of funding (the budget) are prevalent and regulated in terms of the way of doing business, methods of financing, accounting and financial reporting and other business segments.

Higher education is predominantly organized through universities and its constituent units and it is necessary to observe it in correlation with scientific research. Particular emphasis is placed on the quality of the system of higher education and thus enables accreditation of new and re-accreditation of existing higher education institutions according to the system that is compliant with the European Standards and Guidelines (Standards and Guidelines for Quality Assurance in the European Higher Education Area, ENQA, 2015), and is conducted by the independent accredited agency - Agency for Science and Higher Education following the Quality Assurance in Science and Higher Education Law (Official Gazette No. 45/2009). Such normative and administrative regulation of the quality system in higher education was established after the implementation of the higher education institutions establishment process in Croatia and did not have a necessary influence on the current development (Budimir et al., 2018, 9).

According to the assessment presented in the Strategy of Education, Science and Technology of the Republic of Croatia, the existing network of higher education institutions in Croatia covers all parts of Croatia, but exceeds the national potential and results with unsustainable high enrollment quota (Croatian National Strategy for Education, Science and Technology, 2014, 108).

Financing of higher education and science from public and other sources in Croatia is extremely complex and encounters funding specifics that are adjusted to the characteristics of teaching and scientific activity. It is not easy to establish financing model that should address multiple challenges: to make higher education accessible to as many students through public funding, to ensure the competitiveness of scientific and teaching activities in national and international context by taking into account the autonomy of universities and government strategies, to regulate public funds spending, to establish transparent basis for complete higher education institutions funding, to establish "value for money" and to present the

achievement of the strategies and objectives of higher education institutions and their contribution to the society development in a comparable manner (Budimir et al. 2018, 9).

Financing the activities of higher education from budget sources is dominantly carried out through lump-sum model. Financing of infrastructure, i.e. teaching and research facilities and facilities of student standards from national budget sources, EU funds or other specific sources, are reported separately from funds intended for carrying out regular activities and is emphasized as a separate budget item in the Ministry of Science and Education budget. Higher education institutions can generate non-budget revenues that are defined as special purpose revenues and own revenues. Special purpose revenues primarily relate to income from students' participation in study costs (part of tuition fees) while their own income is defined as revenue from various projects, elaborates and expertise, publishing activities, renting space and equipment and similar revenues.

In a search for the best model of higher education financing in Croatia, the Ministry of Science and Education has started cooperation with the universities to implement program contracts. The implementation of program contracts assumes decentralization of decision-making on the spending of resources, meaning that higher education institutions need to achieve the best ratio between autonomy and accountability for results and to develop management and operational mechanisms that will ensure the implementation of program contracts. Implementation of program contracts requires professional management mechanisms: new public management, management and cost accounting instruments, internal control system and financial responsibility.

Health care in Croatia is provided on the entire territory as a public service and is aimed at the entire population. The Health Care Act (Official Gazette No. 100/2018) regulates the healthcare principles and measures of health care, the rights and obligations of healthcare beneficiaries, the authorities competent for public healthcare, the content and organisational forms of the provision of healthcare and the supervision of its provision. Everyone is entitled to healthcare and the possibility of the achievement of optimal health level. Healthcare in the Republic of Croatia has been organized on four levels: primary (health centres and nursing homes), secondary (polyclinics, hospitals, health resorts), tertiary (clinics) and health care institutions. Sources of funds and total resources required for the provision of healthcare are limited and health needs, driven by advances in scientific knowledge and health awareness, are increasing and there appears the gap between the demand for health services and the possibilities of their financing.

The healthcare financing system can be classified into three models depending on what is the predominant source of financing: the mandatory health insurance model (Bismarck's model), national healthcare (Beveridge's model) and the market model. The health system in Croatia does not function solely according to a single financing model. It is a combination of Bismarck's model based on mandatory insurance (allocated from salaries) and Beveridge's model based on budget revenues, in case of a deficit of income based on compulsory health contributions.

The financing system in Croatia is predominantly public and the role of private health insurance is negligible. Approximately 80% of the cost of healthcare is financed from compulsory health insurance contributions. The remaining 20% of the cost covers general budget revenues, as well as additional and private health insurance (Croatian Health Insurance Fund, 2019). Funding of health services is performed by the Croatian Health Insurance Fund, which collects revenues (contributions for health insurance and other income) and distributes them to healthcare providers.

The allocation of funds to healthcare providers includes several mechanisms. The payment of primary health care in the health centres is carried out through the principal - the amount per insured person (patient), by paying certain services according to the diagnostic-therapeutic procedure, by participating in special preventive programs. Payment of secondary and tertiary health care (polyclinics, hospitals, health resorts, clinic centres) is based on monthly budgets – limits and the institutions should justify the provided services.

Financing of healthcare institutions from the budget is decentralized and budgetary funds are intended for investment and maintenance of facilities and equipment. In addition to the mentioned sources of funding (contribution for health insurance and general budget revenues), health institutions can earn revenues from other sources: the share of user services in the price of services rendered and other market revenues.

Public institutions such as higher education institutions and health institutions are financed from budgetary funds and are obliged to apply the provisions of the Budget Law and the implementing regulations of Budget Law as well as several other regulations in the area of budget and public finances (fiscal responsibility, financial management and control etc.). They are obliged to conduct budget accounting and compiling reports according to the Budget Act (Official Gazette 87/08) which regulates the area of accounting and financial reporting (Chapter IX Budget Accounting) and reporting on budget execution (Chapter X Semi-annual and Annual Budget Execution Report). The framework for accounting and financial reporting has a general-purpose and does not reflect all the specifics of the activities and sources of funding for public higher education and healthcare. Financial reporting is focused on external requirements, i.e. the requirements of the ministries in charge and the Ministry of Finance. In such a model of financing and reporting higher education institutions and health institutions do not have external incentives, neither did they develop internal incentives for the development of internal accounting instruments (Dragija, 2014, Dragija et al., 2017), management and cost accounting (Vašiček et al., 2011) as well as the development of performance indicators (Budimir, 2011). Therefore, the results of the conducted research should be understood in the above-mentioned context.

### **3. Performance measurement in public hospitals and public higher education institutions in Croatia**

#### **3.1. Objectives and research process**

The paper aims to investigate who has more developed performance measurement in Croatia, public hospitals or public higher education institutions, and to what extent do they apply the results of performance measurements for decision-making purposes. New in our study is a comparison of research results for two important parts of the public sector, hospitals and higher education institutions. Both types of institutions are part of the public sector and should have the same goal, rational management of limited budget funds. Our objective is to determine by which intensity they use important performance measurement information and if they use them at the same level. In case of significant differences, a more detailed analysis of the causes that were not the subject of this research should be conducted.

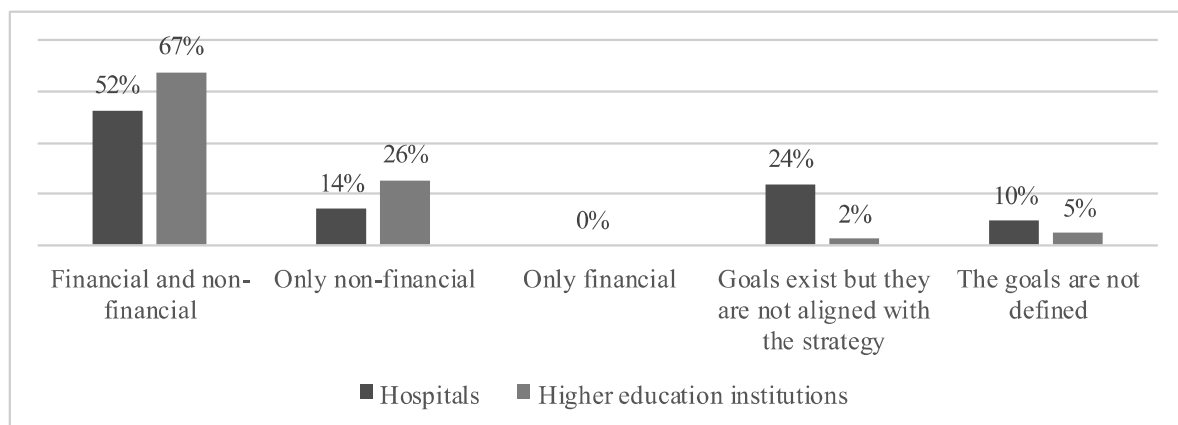
The objectives are achieved through conducting a survey and analysis of results. A survey questionnaire was prepared and sent to all Croatian public higher education institutions and hospitals at the beginning of 2018. The questionnaire was addressed to the managers of public institutions. According to the Agency for Science and Higher Education (2018), there are 131 higher education institutions in Croatia, of which 104 are public, and 27 are private. The questionnaire answered 43 or 41% of the institutions. According to the Ministry of

Health (2018), there are 59 public hospitals in Croatia. The questionnaire answered 21 or 36% of the hospitals.

### 3.2. Results of empirical research

Strategic management of public institutions' activities is a legal obligation (Budget Law, 2008). However, strategic plans are not just an obligation; they are a precondition for successful management of all business entities so as budgetary users. To determine whether the public sector hospitals and higher education institutions define strategic goals and follow their realisation, in the first part of the questionnaire, we asked them about the existence of strategic goals and reporting about the realisation of the strategy related to the activities of employees in the function of strategy implementation. Chart 1. shows that more public higher education institution in Croatia has developed strategic goals than public hospitals. The reason for that is probably because higher education institutions are regularly evaluated by Agency for Science and Higher Education through reaccreditation process in accordance to European Standard and Guidelines (ENQA, 2015) which prescribe strategic planning as the basis for higher education institutions' business management.

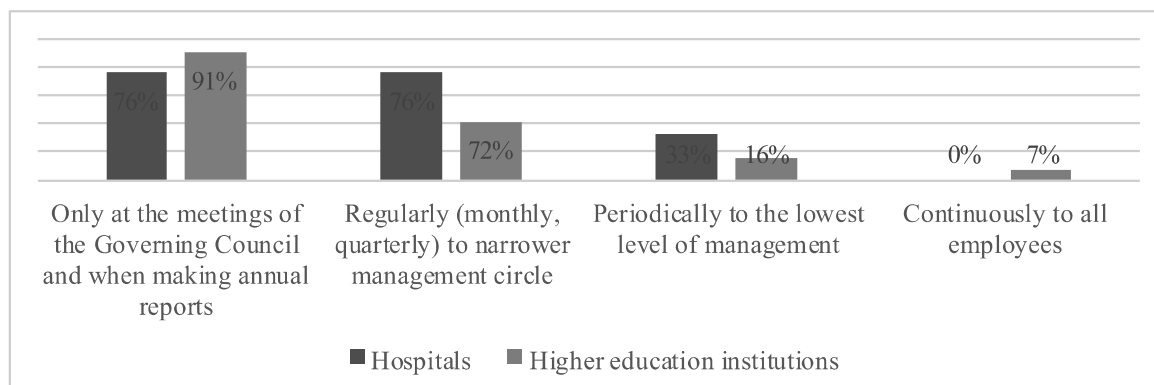
**Chart 1:** The existence of strategic goals in public hospital and higher education institutions in Croatia



Source: Author's research

Since strategic planning is more common in higher education than in health care, it is understandable that reporting about the realisation of the strategy exists or mostly exists in 75% of public higher education institutions and only in 52% of public hospitals in Croatia.

For a successful implementation of the strategy, all employees need to understand strategic goals, at all levels of the internal system, and to inform them about the results achieved within the institution. Results of the empirical study are presented in Chart 2. It is interesting that although higher education institutions have more developed strategic planning when it comes to information about the implementation of plans, they are more oriented to higher levels of management and annual reporting while hospitals present results throughout the year and to the lower levels of management. Generally, at the level of both systems, we can conclude that reporting on business results is mostly related to annual reporting and is very rarely oriented to all employees within the institution.

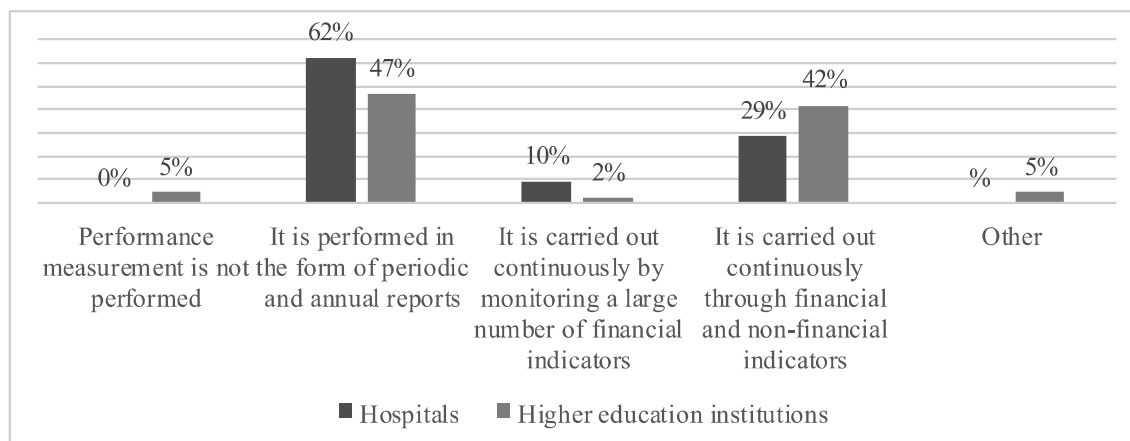
**Chart 2: Presentation of results within the institution**

Source: Author's research

These results are in correlation with answers to the question about the information needs of public managers. Namely, managers have been asked whether the information presented in the basic financial statements is sufficed for successful business management of the institution. More than 67% of higher education institutions' managers think that this information is mostly or completely sufficient. Managers of public hospitals are more aware of their insufficient for the decision-making process, but also a high percentage of them (57%) think the same as managers of higher education institutions. These results are in line with the responses of Croatian public managers collected in the survey conducted in 2009 (Budimir, 2011, 110) when 79% of budget users answered that the information contained in the annual financial statements is sufficient or largely sufficient for successful management. The basic financial statements are more oriented to external users than managers. For successful business management, a wide range of financial and non-financial information is required.

To determine who has more developed performance indicators in Croatia, public sector hospitals or higher education institutions, we asked how they measure performance. The results, shown in Chart 3, show that as the most commonly occurring forms appear periodic and annual reports (for 62% of hospitals and 47% of higher education institutions). The responses above are again in correlation with the beliefs of public managers that annual reports are sufficient for management purposes. Despite that, some of the respondents conduct a continuous measurement of financial and non-financial performance indicators (more in higher education than in health care). Such results can be linked to the recommendations provided by the ESG standards (ENQA, 2015, 14) on the need to define and monitor key performance indicators in higher education. However, still, less than half of the higher education institutions are continually measuring and tracking performance based on indicators.

Most of the respondents (70% for higher education institutions and 85% for hospitals) define performance indicators based on the need to inform the budget in charge. Own indicators, defined for internal needs, have 56% of surveyed institutions in both sectors. The results indicate a strong correlation between information requirements of the budget authority with public institutions' performance measurement. In hospitals, this link is strengthened, and the reason for this probably is in the fact that public hospitals every year go through the performance measurement evaluation and ranking based on the given sectoral indicators (Croatian Health Insurance Fund, 2014).

**Chart 3: Performance measurement modes**

Source: Author's research

The most important aspects of the monitoring for higher education institutions are professional and scientific-research work (84% of respondents) and resources - material and financial (79% of respondents). Hospitals' performance tracking is most often based on quality (62%) and patients (52%).

Comparison of performance indicators conducts more than 90% of public hospitals and 74% of public higher education institutions. The results of the performance measurement they monitor through time (42% of respondents from higher education and 74% of respondents from hospitals) or compare it with default size (plan) (44% of respondents from higher education and 52% of respondents from hospitals). Only a small part of the institutions (21% of higher education institutions and 33% of hospitals) compares the results with other similar institutions. Comparing performance measurement results is more frequent in hospitals than in higher education. The reason for that probably is already mentioned external evaluation and ranking of hospitals by the Croatian Health Insurance Fund. The comparison of the achieved results with the set goals, previous results and the results of similar institutions is important for assessing the success of achieving strategic goals and program results. It is also important for the economy, efficiency and effectiveness of budgetary users' performance.

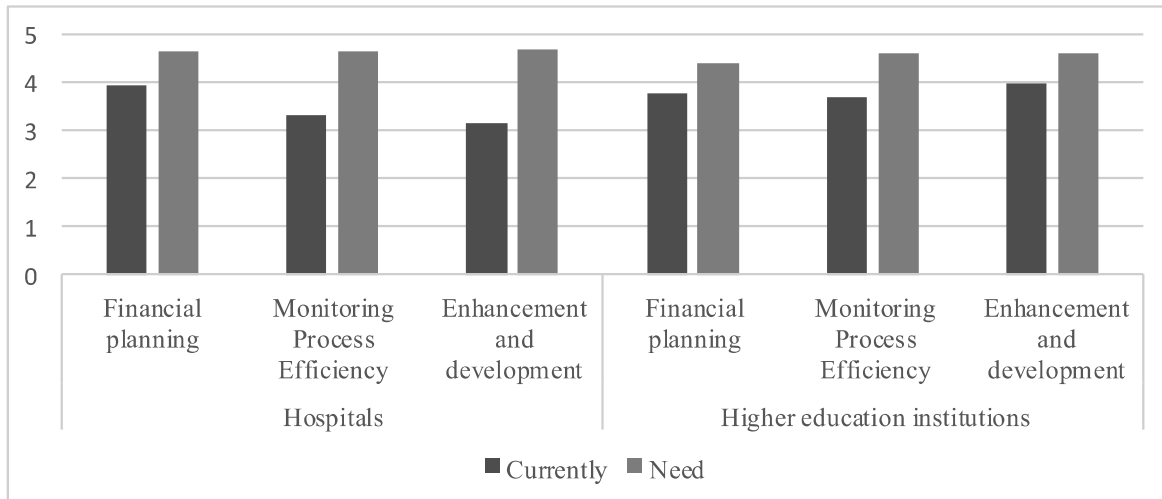
Short-term (daily and weekly) decisions are partially based on the results of performance measurement and the majority of the respondents rated it by grades 1-3. Medium-term (monthly) decisions are more based on performance results, but the largest number of respondents use the results of performance measurement in the process of making long-term (strategic) decisions. We can conclude that performance measurement is not of great importance for making day-to-day decisions for higher education institutions, but as the decision-making period is prolonged, the importance of performance measurement is increasing. Hospitals, on the other hand, equally use the results of performance measurement regardless of the time frame for decision making.

To determine the level of use of the performance measurement results in business decision-making, we asked about the importance of performance indicators in business processes such as planning, informing, control, improvement, quality assurance and transparency. We asked respondents about the current state of the use of indicators in business processes and their opinion on the need for their usage. Respondents evaluated the importance from 1 (minimum importance) to 5 (the highest importance).

From Chart 4, it is visible that the observed budgetary users use performance measurement results partially in the planning and allocation of resources. Higher education institutions

partly use performance indicators to improve their business and for monitoring also, but its usage in hospitals is significantly lower. Public managers are aware that the use of performance measurement in these processes should be significantly larger and more significant and that is positive. For all processes, they rated it with high 4.6 and higher average grade.

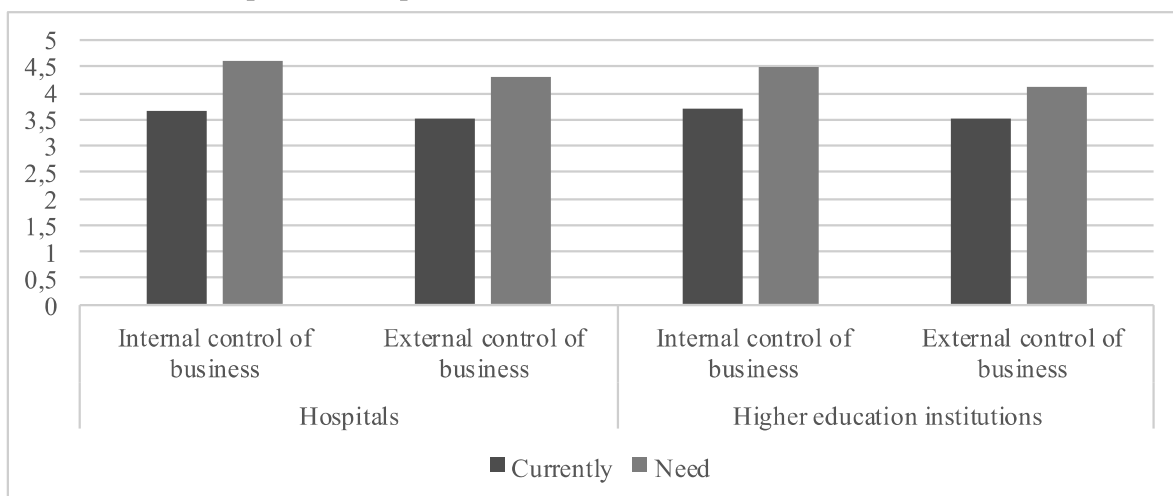
**Chart 4:** Importance of performance indicators for planning, monitoring and enhancement



Source: Author's research

Hospitals and higher education institutions as budgetary users also partially use performance measurement results for internal and external business control. Performance indicators provide managers and bodies in charge (ministries) with high-quality information to monitor business activities, provide analysis of the resources spent and results achieved and performance monitoring. As can be seen in Chart 5, public managers are aware of their even greater significance and potential for use, especially in internal control processes. Given the developed awareness of the importance of using performance indicators in internal business control procedures, the question arises as to the discrepancy in their application.

**Chart 5:** Importance of performance indicators for internal and external control



Source: Author's research

Performance indicators are partially used for employee rewarding and motivation purposes in higher education institutions (average grade 3.3) and rarely in hospitals (average grade 2.1), but public managers are aware of their greater usability (average rating 4.1). Performance indicators are not used for punishment purposes in both sectors, but managers believe that



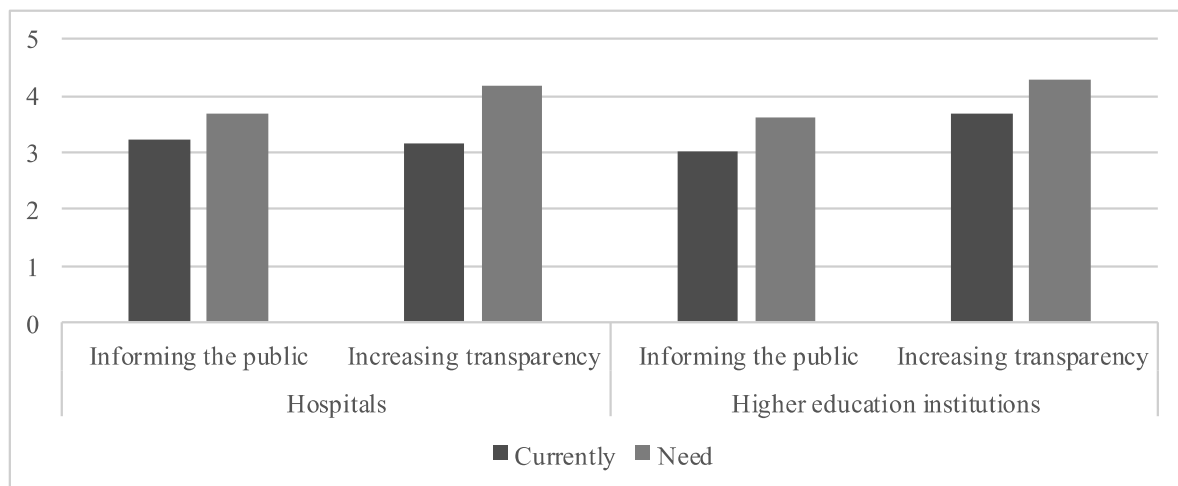
they need to be used to some extent (average rating 2.8 for higher education institutions and 3.14 for hospitals).

Performance indicators have high importance in quality assurance procedures of higher education institutions (average rate 4), but they are only partly used for that purpose in hospitals (average rate of 3.48). Hospitals rarely use performance indicators in the self-evaluation process (average rate 2.76) while higher education institutions apply them more (average rate 3.7). However, again, public managers are aware that they could be used more in the evaluation process (average grade 4.5).

While performance indicators are a powerful tool for comparison with other similar institutions, their use is not very common in Croatian budgetary users (average grade 3.1). The managers of these institutions are aware of the greater usage possibilities, in hospitals (4.2) more than higher education institutions (3.7). The use of performance indicators in internationalisation processes is low (average grade 3.2 for higher education institutions and 2.19 for hospitals), while awareness of the possibilities of usage is more developed in both sectors (4.0).

As can be seen in Chart 6, performance indicators are not used to a significant extent for informing the public (average grade 3 for higher education institutions and 3.24 for hospitals) although awareness of their relevance to public managers is a bit more developed (average grade 3.6). Their use in increasing transparency is moderate (average rating of 3.7) for higher education institutions but much lower for hospitals (average grade 3.14). They all see greater future use opportunities (average grade of more than 4.2).

**Chart 6:** Importance of performance indicators for transparency and informing the public



Source: Author's research

Most managers of both types of institutions consider it necessary to define sectoral performance indicators at the state level. They also consider it necessary to define these indicators at the global (European) level.

The most significant indicators that higher education institutions measure include: number of students enrolled, student passage, average student rating, duration of study, student satisfaction, employability of completed students, ratio of student/teacher, results of student assessment for teacher evaluation, teaching excellence, budget implementation, total student expenses, earnings per employee, income by study modules, business efficiency. Hospitals performance indicators measurement includes customer service satisfaction, mortality rate, number of patients, duration of treatment, number of cases, number of repeated admissions,

patient turnover per bed, capacity utilisation, financial results, cost-effectiveness analysis, cost-per-business analysis.

Based on the analysis of the results, we conclude that Croatian public higher education institutions and hospitals to a certain extent apply the results of performance measurements for decision-making purposes. The level of usage differs depending on business processes within the institution. In higher education institutions their usage is most prominent in quality assurance procedures, improvement and development. Croatian hospitals performance indicators partially use for planning, monitoring and quality assurance of services through the adoption of long-term (strategic) decisions.

#### **4. Conclusion**

Analysis of research results showed that there are some differences in usage of performance measurement instrument between public hospitals and higher education institutions in Croatia, but in the most aspects they are similar. Higher education institutions are more aware of the importance of strategic planning and reporting about achieved results. They also have a bit more developed performance measurement system through an internally developed system of performance indicators. On the other hand, public hospitals' managers make more efforts to inform the results achieved through lower management levels, and they are more aware of the need to develop an internal reporting system for successful business management. They also use the results of performance measurements for different comparisons (through time, with default plans and other similar institutions). In other aspects like usage of performance measurements for decision-making purposes and managers' opinions about the importance and possibilities of their use in business processes, they are quite similar. Managers of both types of public institutions use performance measurement results only partially when making business decisions, but they are fully aware of their great benefits in successful business management.

The limitation of this research is in the interpretation of questions and results. Namely, the questionnaire was forwarded electronically, and there is a possible lack of understanding of the questionnaire by hospitals' and higher education institutions' managers. Also, the managers of these institutions are not professional, and their management knowledge may be limited. It is therefore recommended for future studies to interview with individual managers to obtain a deeper and more complete picture of their management needs and possibilities.

Since there are rare researches about the usage of performance measurement in budgetary users' management in Croatia, the contribution of this work to the academic community is visible in presenting the results. The amount of budget funds belonging to hospitals and higher education institutions is considerable, and therefore there is a large need for their effective management. Presented research encourages the general public to monitor the management of these institutions critically. We believe that research will help researchers in Croatia, and other countries, to gain an insight into the importance of good governance information bases and to make a comparison between countries. Also, the conducted research opens space for further researches as to how the performance indicators are used by financiers - the state and the funds, in allocating limited budget funds.

Given the importance of effective governance in all parts of the public sector, we believe that our work is important to the management structures of the investigated entities as well as to other budgetary users, service users, taxpayers, the budget in charge and legislators.

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