

# Strategic management of Scientific Research Organisations (SROs) as a tool for success - evidence from Serbia

*KLJUČNE BESEDE: NIO, strateški menadžment, inovacija.*

*POVZETEK – Uticaji današnjeg složenog okruženja uz razvoj ekonomije znanja uzrokuju brze promene u obrascima upravljanja u naučnoistraživačkim organizacijama (NIO). Strateški menadžment naučnoistraživačkih organizacija postaje glavno sredstvo za postizanje organizacionog uspeha. Istraživačke i razvojne aktivnosti koje se sprovode u naučnoistraživačkim organizacijama su uglavnom projektno orjentisane, te je definisanje odgovarajućih programa i projekata od ključne važnosti za strategiju njihove implementacije. U proteklom veku u Srbiji, kao i u većini postkomunističkih zemalja, istraživanja i razvojne aktivnosti nisu bile diktirane potrebama tržišta, što predstavlja nov izazov za menadžment naučnoistraživačkih organizacija. U istraživanju koje je predstavljeno, zaposleni u naučnoistraživačkim organizacijama su prepoznali potrebu za uvođenjem strateškog pristupa u upravljanju projektima.*

*KEYWORDS: SROs, strategic management, innovation*

*ABSTRACT – The influences of today's complex environment, as well as knowledge economy development, cause rapid changes in the management patterns in Scientific Research Organizations (SROs). The strategic management of SROs becomes the main tool for achieving organizational success. Research and development activities that are carried out in SROs are mostly project-oriented, so a definition of appropriate programs and projects is crucial for strategy implementation. In the last century, in Serbia, like in most post-communist countries, research and development activities were not triggered by market needs, which is a new challenge for the SROs management. In the presented research, the employees in SROs identified the need for introducing a strategic approach to project management.*

## 1 Introduction

The influences of the complex environment and knowledge economy development cause rapid changes in the management patterns in Scientific Research Organizations (SROs). The strategic management of SROs become a prerequisite for success. Most of the activities performed in SROs are project-oriented; therefore, strategically organized project and program management poses a challenge for SROs management. During the long period of socialism in Serbia, research, development and innovations were not market-driven. The presented empirical research indicates that the employees of SROs in Serbia identified the need to introduce a strategic approach to project management. The results of the research should contribute to presenting an overview of the practical implications of applying the strategic approach in SROs management by putting forward the recommendations both for SROs management and for decision makers in research and development (Ružičić Mosurović & Obradović, 2020).

The reason for performing the research is a rather weak connection between scientific research and economic needs. There is a mismatch between the research taking place in SROs and actual economic needs, most of all, the needs of industry (Jain et al., 2010). The sources of funding SROs determine the project and program direction. Most of the institutes are financed from

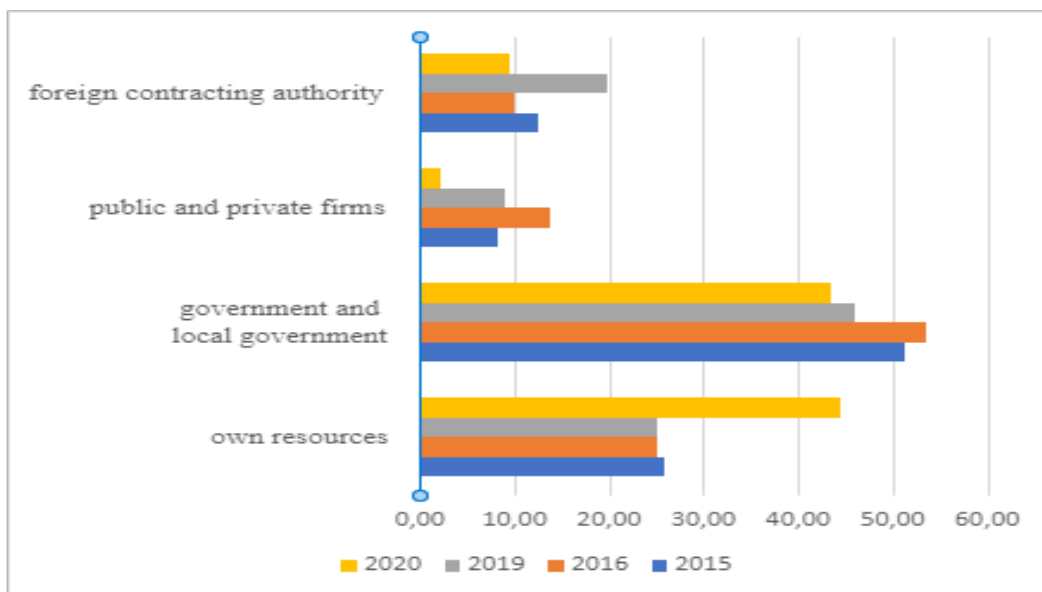
national budgets, and the management of these organizations at the strategic level should be in line with national development policies.

SROs strive to enable the most efficient and effective implementation of scientific research activities in an appropriate organizational context. The organizational component integrates and organizationally defines all the features that characterize the process of conducting scientific research, such as project management, the cooperation within and between project teams, budget management, employee development plans, and the organizational link between strategic and operational work by creating project management units and so forth.

## 2 Organizing scientific research activities in SROs in Serbia

Performing scientific research activities, that is, the system of conducting scientific research activities in Serbia is regulated by the Law on Scientific Research Activity. In order to achieve the set goals, priorities and directions of scientific and technological development, the Strategy of Scientific and Technological Development is adopted at the proposal of the Competent Ministry (Ministry of Education, Science and Technological Development), which is in line with the national economic and social development strategy. The Strategy is devised for a period of at least five years. SROs in Serbia are mostly financed from the funds provided by the Government of the Republic of Serbia, and the encouraging fact is that recently there have been some other types of funding (Figure 1).

Figure 1. The sources of R&D funding for 2014, 2015, 2020, and 2021. Source: The Statistical Office of the Republic of Serbia (2014, 2015, 2019, 2020)



The scientific research system in Serbia has been experiencing the process of transformation since the second half of the last century from a plan-led system to a market-driven system. Serbia, like most post-communist countries, has faced major challenges during the process itself (Racine et al., 2009):

- It can be noticed that the SROs are oriented mainly on scientific achievements, less on their practical application. There is great interest in fundamental research, which are usually not in line with the needs of the national economy.
- Scientific research activities were mainly supported by the state regardless of the actual market needs, resulting in insufficient or almost non-existent link between the scientific research sector and the industry.

- SROs managers are not sufficiently trained for the strategic management of the organization. Moreover, managers are not motivated to initiate any significant changes. They merely observe how the organization is constantly collapsing both financially and regarding personnel, with no intention of doing anything to change the trend, hoping that the system will not completely collapse until they get retired.
- The outdated strategic management system. The governing boards of SROs often consist of the members elected for political reasons who support organizational restructuring, but on a general basis. Fortunately, certain industry representatives have appeared who could perform the restructuring process.
- The departure of the scientific researchers who had the capacity to carry out changes. A large number of scientists who had the will and desire to initiate some changes left SROs and moved abroad where they were offered better working conditions, both financially and intellectually. Those who remained are mostly not interested to make any significant changes.
- There is also a lack of transparency. In the past, a large amount of information on finances and other data was marked as strictly confidential, so the figures available to the institutions are not sufficiently reliable and accurate.

When it comes to SROs in Serbia, in addition to the abovementioned challenges, they also face a constant lack of financial resources, especially from the financing sources from the market, foreign clients, and European funds and so on. In addition, the lack of research capacities and research infrastructure is noticeable. As a result of the ownership transformation of a number of SROs and a lack of financial resources for a long period of time there has been no investments in research facilities and equipment leading to obsolete equipment. Therefore, scientific research results cannot maintain a satisfactory level to meet the market demands and achieve competitiveness. Research and development laboratories in large research and development institutes are in the process of structural transformation and shutting down. The solution to these problems can be sought in the cooperation with other innovation stakeholders and the creation of appropriate infrastructural forms that can help improve the quality of scientific research results, diffusion, and technology transfer. It is necessary to use the comparative advantage based on high-quality scientific research staff and adequate knowledge management to increase the participation of researchers both in domestic and foreign funds (Mosurovic-Ruzicic et al., 2015).

The importance of the strategic management of research and development in the organizations in Serbia was outlined by Bošković in the domestic literature in the second half of the last century. Bošković (1979) stated that creating the strategy in the organization of joint work should be oriented towards strengthening research capacities and needs to have a clearly defined goal which is "solving one or a group of problems". It was concluded that the strategy of the organization engaged in research and development needs to be in line with the national development strategy. Muratović (1983) believes that long-term planning is vital to the R&D process in organisations, as well as defining the goals according to the long-term general development, defining the strategy for their achievement, specifying the contribution of certain organizational units in terms of fulfilling the defined strategy and goals, and defining the order and dynamics of projects in order to realise the goals.

### **3 Methodology**

The results presented in this part of the paper are taken from the empirical research Strategic Management of SRO in Serbia. The SROs in Serbia accredited by the Ministry of Education,

Science and Technological Development were analysed in the research. In previous research, SROs in Serbia were analysed mainly in various descriptive research that mostly related to the strategic management process in a particular SRO, or SROs as a part of a larger system within the strategic documents at the state level. There were no concrete, more extensive empirical studies on the analysis of the strategic management of SROs in Serbia. The issue of the strategic management of SROs is recognized at the strategic level as well, within the Strategy of Scientific and Technological Development of the Republic of Serbia for the period from 2016 to 2020 – Innovation Research: "the majority of SROs do not have a strategic approach to research management and directing research towards innovation". The framework of the empirical research was primarily based on the components of the integrated strategic management model that had been previously developed and which described all the phases of the strategic management process: planning, implementation, monitoring, and evaluation (Mosurović Ružičić, 2018).

The questionnaire was an online version, securing the anonymity of the respondents and, thus, improving the response rate. Additionally, the respondents received a cover letter, informing them about the purpose of the research and the time needed to complete the questionnaire on organising the project management activities in SROs. The segment referring to the project organization of scientific research activities in the function of strategic management is presented in the paper.

#### **4 The organization of strategic project managing**

SROs strive to enable the most efficient and effective implementation of scientific research activities in an appropriate organizational context. The organizational component integrates and organizationally defines all the features of performing scientific research activities, such as project management, the cooperation within and between project teams, budget management, employee development plans, developing an organizational link between strategic and operational work by creating project management units and so forth. The responsibility of project portfolio management is most often to be in charge of a special functional unit for project management. Project management units are centralized organizational units whose establishment was mainly initiated by leaders as a response to the growing management challenges arising from project portfolios (Unger et al., 2012). Unger et al., (2012) pointed out the existence of a significant positive effect of coordination and control roles of project management units on performance in terms of the quality of project portfolio management, which is a prerequisite for project portfolio success.

The International Project Management Association (IPMA) explains that the project management office (PMO) "represents a management structure that standardises project-related governance processes and facilitates the sharing of resources, tools, methodologies, and techniques. Recognizing that the character and function of PMO varies between organizations, and even within the organization itself, this appendix outlines common attributes among PMOs and discusses how PMOs support project work" (Project Management Institute & Global Standard, 2021). Creating a functional unit for project management, sometimes a unit of specialists/project managers, allows employees, who are often engaged in projects, to have in some way their own "base" tailored to their specific needs enabling intensive knowledge transfer between projects. They also get a project-oriented manager willing to pursue their careers and support them if a conflict arises which is a typical situation during a project, especially if several projects are being conducted simultaneously. The existence of a permanent organizational unit enables better overview of its project specialists and makes it easier to assign them to appropriate projects (Gemünden et al., 2018).

Figure 2. Strategic project management – the current situation

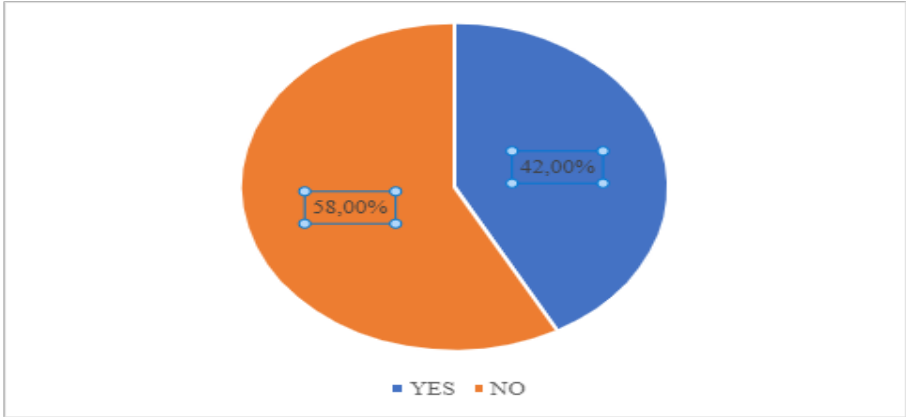
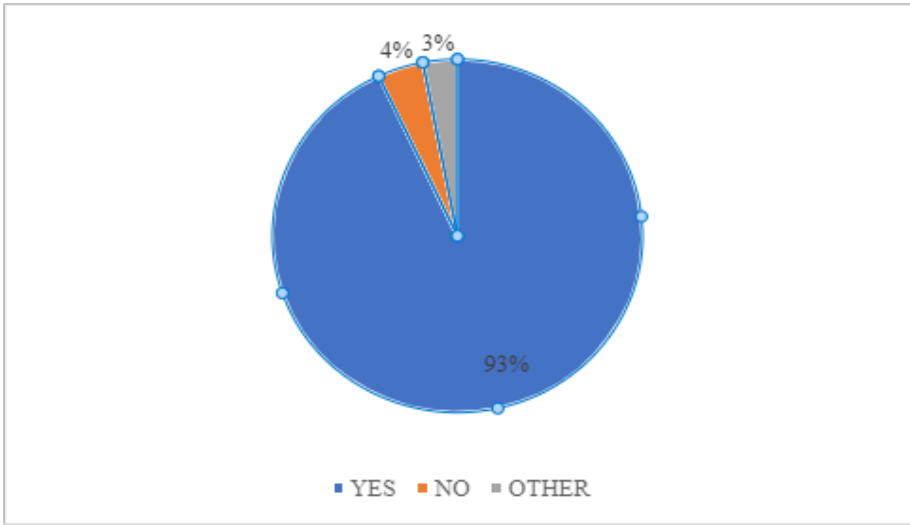


Figure 3. Strategic R&D project management in SROs is necessary



The respondents recognize the importance of strategic management of scientific research projects and consider the application of strategic management very important (93%) for SROs, but they also believe that current scientific research projects are not managed strategically (58%) compared to (42%) believing they are managed strategically. The structure of the respondents' answers indicates that our research subject was chosen well and that there is interest in improving strategic management at the organizational level (Figure 2 and Figure 3).

Figure 4. SROs that have an organizational unit for strategic management

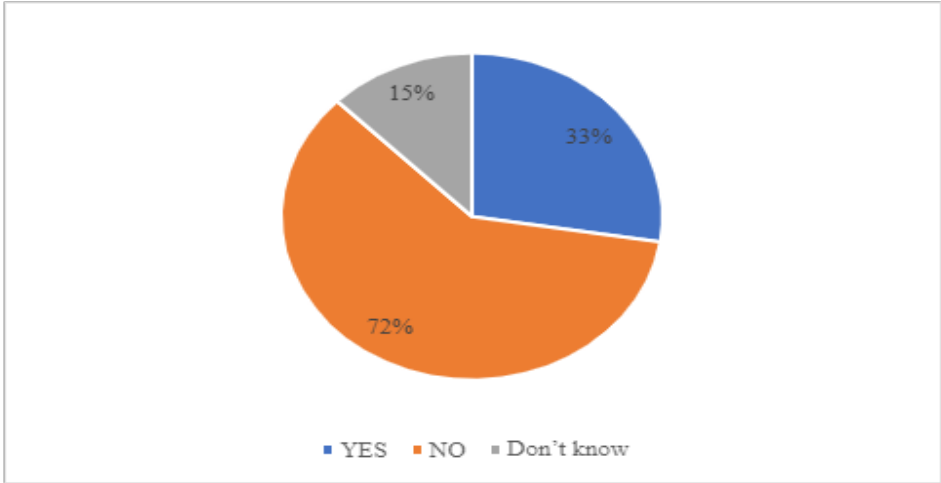
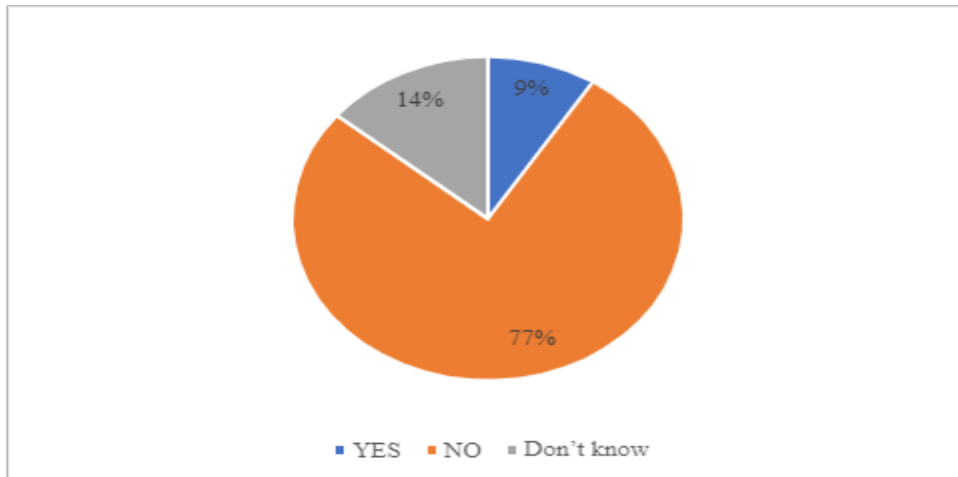


Figure 5. SROs that have an organizational unit for project management



Approximately the same number of respondents believe that at the organizational level there is not specific organizational unit neither for strategic management (72%) nor for strategic project management (77%). The approximately equal value of the answers may indicate the fact that SROs activities are mainly project-based, so the idea of the strategic management unit at the organizational level may be equated with the strategic management unit at the project level. What causes concern is the fact that certain respondents (15% and 14%, respectively) do not know whether the strategic management in the organization is particularly functionally organized (Figure 4 and Figure 5).

## 5 Conclusion

All the changes and macro-economic impacts of the transition have certainly influenced the strategic management development of SROs. In addition to investing in scientific research capacities and practice, it is essential to invest in improving the quality of SROs management which has been neglected for so long. In Serbia, for a long time, as a consequence of the centralist approach to decision-making, science was perceived as an activity that was an end in itself and its functioning was possible through the projects funded by the Ministry of Education, Science and Technological Development. The effects of investing in science were almost invisible because the positive effects can only be seen in the efficient functioning of the national innovation system. The main driver is growing market pressure, which is increasingly leading to the integration of the research, development and innovation strategy with the commercial strategy. It is essential to establish a link between the research and development policy and other policies (education, economic development, etc.). One of the ways to achieve this is to adequately organize project management activities in SROs.

When it comes to organizing project management activities in SROs, it would be useful to have a specialized project management organizational unit. For example, in SROs in Serbia, there is a need for the existence of such a unit due to the growing competitiveness of our organizations when it comes to the participation in various international competitions and invitations. In that way, the results of scientific research activities in SROs in Serbia could be monitored more efficiently which could be the subject of some other activities.

## LITERATURE

1. Bošković, D. (1979). Organizacija istraživanja i razvoja u udruženom radu. Savremena administracija.
2. Gemünden, H. G., Lehner, P., & Kock, A. (2018). The project-oriented organization and its contribution to innovation. *International Journal of Project Management*. <https://doi.org/10.1016/j.ijproman.2017.07.009>
3. Mosurovic-Ruzicic, M., Semencenko, D., & Kutlaca, D. (2015). Innovation Infrastructure for Technology Transfer and Diffusion in Serbia. *Marketing*. <https://doi.org/10.5937/markt1501036m>
4. Mosurović Ružičić, M. (2018). Integrisani model za strateško upravljanje u naučnoistraživačkim organizacijama. Fakultet organizacionih nauka, Univerzitet u Beogradu.
5. Project Management Institute, & Global Standard. (2021). A Guide to the Project Management Body of Knowledge PMBOK® GUIDE - Seventh Edition. [www.PMI.org](http://www.PMI.org)
6. Racine, J. L., Goldberg, I., Goddard, J. G., Kuriakose, S., & Kapil, N. (2009). Restructuring of Research and Development Institutes in Europe and Central Asia.
7. Statistical Office. (2014). Scientific and Research Activities in Republic of Serbia.
8. Statistical Office. (2015). Scientific and Research Activities in Republic of Serbia.
9. Statistical Office. (2019). Scientific and Research Activities in Republic of Serbia.
10. Statistical Office. (2020). Scientific and Research Activities in Republic of Serbia.
11. Unger, B. N., Gemünden, H. G., & Aubry, M. (2012). The three roles of a project portfolio management office: Their impact on portfolio management execution and success. *International Journal of Project Management*. <https://doi.org/10.1016/j.ijproman.2012.01.015>