Evaluation and Fertility: eScience as a Pledge for the Development of Science and a Democratic Society - Transparency as a Basis for the Development of Science and Society -

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ABSTRACT: This paper discusses the importance of establishing eScience in the context of the transparency of science, the potential scope and reach of Serbian scientific endeavors, and increasing its influence in the international scientific arena. In this paper, we will reflect on certain technical solutions related to eScience project, pointing out potential problems and benefits, all related to the developments of digital aspects of society,, with an emphasis on the concept of "open science" and the role of libraries and librarians in this ecosystem.

KEYWORDS: eScience, open science, transparency, libraries, science evaluation, knowledge society

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1 Context

With the increase in the importance given to science and technology in the study of the economic development of a country, research attention has been extended to the scientific capacities of countries and, more narrowly – to the possibilities and efficiency of the implementation of scientific achievements in the economy. Therefore, in many developed countries, the ministries of science and economy are often integrated into a common organizational unit. The phrase "scientific wealth of the people" was introduced, as well as "evaluative state". It is about interdisciplinary research (scientific performance, contribution, development, and, more recently, effectiveness), the

ultimate goal of which is improving and rationalizing scientific activity in the countries under analysis.

In other words, money gradually took center stage in discussions about science – a space once reserved for great scientific discoveries – so economic reasons overrode political ones in formulating national science strategies. The former "sociology of science" has given way to the "economics of research", so science has moved from its former involuntary privileged position in terms of budgeting to the domain of real project financing, which is based on what was first called the *Logical Framework Approach* (LFA) in America. This form implies a certain "project matrix logic", which means clear indicators of results, specific objectives, and the sustainability of scientific projects. Since recent times, there has been an insistence on the networking of public, private, and non-governmental units of society, which is related to the implementation of science in something most often called fertility or "social utility." All this implies a way of monitoring researchers or projects, i.e., their evaluation, which becomes the basic tool of scientific research development at the individual and national level.

This type of transformation of scientific sectors in developed countries has occurred, first of all, for two basic groups of reasons, which we can call: internal and external. The internal reasons concern the integrity of science itself because, at some point, it became clear that the scientific community cannot deal with ethical problems: it is about the expediency of the peer review procedure as the basic evaluation mechanism in science. When money is involved in this story, the integrity of science is usually called into question. In this sense, the reviews of magazine articles were not the focus of attention to that extent, as much as participation in high-budget scientific projects, within which there were often affairs in which, sometimes, renowned names of world science, even Nobel Prize winners, took part. Of course, the funds immediately approached scientific projects with a greater reserve and approved their financing.

When it comes to external reasons, science has failed even more. The social usefulness of scientific results has remained under question due to various interest manipulations, regardless of whether we are talking about financial or political motives. Although we have witnessed a great increase in scientific achievements in the past century, social circumstances call for more caution and care. Phenomena such as they were – the problem of the third world, the multiplication of the lumpen-proletariat, the increased gap between rich and poor societies and individuals, the rise of extreme ideas and ideologies, and migration of the population – were not in accordance

with the general proclaimed progress of science and scientific achievements. Therefore, something serious had to change.

The informal "social contract" when it comes to investments in science after the Second World War. functioned according to the principle of social obligation to direct the "surplus" of material resources to science. All "funding policy" in the context of science was, with the exception of military or politically confidential state science, entrusted to the scientists themselves. Nevertheless, the first post-war financial crises influenced the fact that economic reasons figure primarily in the adoption of science policy strategies, rather than political ones. That's how people started talking about the "economics of research" and evaluation, and therefore also about fertility. In the context of the present moment and modern digital technologies, this often includes portals, that is, repositories based on the principle of transparency.

The fact that the principle of LFA and the doctrine of evaluation is extremely important for Serbian science is best shown by the fact that in the process of accession to European integration, it is necessary to join and adapt to the principles of project financing, already long ago adopted by the most important international institutions, from the International Monetary Fund and the World banks, through institutions and programs of the European Commission, all the way to tenders and programs of individual European institutions and international corporations. However, while transparency is essential to good governance and an excellent starting point, it does not in itself get the job done. It is only one of the key elements of a system of oversight, accountability or potential sanctions. It reduces the potential for waste, mismanagement, or corruption and generally improves macroeconomic management.

In such a context, the need to establish a quality and efficient model for monitoring scientific production in the Republic of Serbia is urgent and necessary. The reasons are more than obvious: a clear overview and monitoring of current scientific production, huge savings, tying funding to the success of scientific research organizations and individuals, creating a competitive scientific environment, and creating a young, highly profiled scientific staff. There have already been attempts to establish a transparent digital system in the field of science evaluation in Serbia. The RIS (Repository of Serbian Researchers) and Dositej projects are a very good starting point, not only in terms of first steps, but also in terms of all the problems and technical solutions that would have to be corrected in the eScience system. Also, BISIS systems, especially COBISS, where the largest Serbian scientific and library hubs function, are an exceptional basis for creating a superior digital science

evaluation system. Nonetheless, successful state projects such as eGovernment and cooperation between the state and the private sector are also a kind of guarantor in the process of establishing this system. Finally, there are significant examples from abroad, such as SICRIS in Slovenia, eNauka in Poland, or Manara in Qatar.

2 The role of libraries

In the creation of the concept of eScience, the role of librarians was initially absent. Libraries were understood as services that were supposed to perform parts of technical work. However, during the implementation of eScience itself, it became unequivocally clear that a more significant involvement of libraries and librarians is necessary, not only in the sense of the so-called editors or referees in scientific research organizations, but also in terms of establishing the architecture of eScience itself. Actually, from this distance of time, it seems logical that the greatest ally of eScience are libraries. Librares are the places of the future "knowledge society" representing essential innovation "hubs", where new technologies and platforms are implemented and researched. Furthermore, large libraries (especially academic ones) have resources – human and technological (digital), which can be put to the service of eScience. Therefore, the only valid way to approach the problem is one that involves engaging, reorganizing, and integrating what the library already owns. This is only possible if one wants to achieve a quick, comprehensive, efficient, and, most importantly, sustainable response to the demands of eScience.

In other words, instead of building from scratch, it was necessary to actually use the existing systems, in order to achieve the desired result. And that is the crucial difference of eScience compared to all previous attempts – it should not become a repository in which everything will be entered again, and the work will be done from the beginning. It should be an aggregator that draws on all existing resources and obtains information from existing systems and platforms, regardless of whether they are individual institutional repositories or larger systems like COBISS.

For example, in the main higher education and largest academic library of the Republic of Serbia – the University Library of the University of Belgrade – certain systems are already in place. We will mention three crucial ones for eScience:

1. COBISS – This system has been in Serbia since 1989 and is our first mutual cataloging system. Since 2002, local library databases have been

integrated into the COBISS.SR system, and since 2003, all systems have been integrated into the regional COBISS.Net system. Before the founding of eScience – in the COBISS.SR system, about 250 libraries of all types functioned, and the number of records was about 4 million unique bibliographic records in the COBIB.SR catalog, with about 300,000 normative records for persons. The University Library "Svetozar Marković" in Belgrade is one of the founders of the Virtual Library of Serbia and the bearer of the development of the COBISS.SR system, especially in the field of scientific and research work. A local database with around 370,000 bibliographic records, as well as highly qualified experts – librarians, editors of both the mutual catalog and catalog of normative records, and members of the Commission for the allocation of licenses for mutual cataloging in the COBISS.SR system – are the best quality guarantors to implement eScience.

2. E-CRIS.SR – the web application E-CRIS.SR is an information system about research activity in the Republic of Serbia, and it was developed in accordance with the CRIS (Current Research Information Systems) systems that have been developed in Europe for many years. The data structure on research activity is internationally standardized, compatible, and generally accepted in the form of CERIF (Common European Research Project Information Format). The essence of the E-CRIS.SR system consists of databases of researchers, research organizations, and research projects. The databases are interconnected, and most of the data is in Serbian and English languages. It is also possible to search in all key fields, and it is important to note that this system is connected to the COBISS.SR system, for printing personal bibliographies of researchers so that users are provided with immediate insight into the bibliographies of research papers. University Library Belgrade is an institution that manages and maintains the E-CRIS.SR database of researchers and scientific workers of Serbia, scientific research organizations, and the projects they work on. Before eScience was installed in E-CRIS, 309 research organizations, 12,917 researchers, and 777 domestic projects (together with European ones – 3,477) were represented. These data became an essential source for the eScience system, and they included the addition of new functions within the E-CRIS system itself. In cooperation with eScience, there are currenlty 25,893 researchers and 325 organizations in E-CRIS. Also, as in the case of the COBISS.SR system – the control of the data entered into the system is performed by highly qualified experts.

3. PHAIDRA – digital repository of the University of Belgrade, established in 2011 for the purposes of depositing the works of professors and associates of the University. It was developed at the University of Vienna as part of the Tempus project and was also established at the Universities of Niš and Kragujevac. The basis of this repository is the Fedora system. The Phaidra repository (Permanent Hosting, Archiving and Indexing of Digital Resources and Assets) enables researchers to: deposit various types of documents (text, images, video and audio files), as well as groups of documents and data sets, deposit documents with a unique identifier – with a permanent, stable link, as well as depositing different versions of the same document, where each new version is linked to the previous one, and their changes can easily be followed. The repository contains a standardized metadata scheme (Dublin Core) – a series of repeatable fields that describe an object. The visibility of objects that are primarily in open access is implied, with the possibility of simple "locking": viewing can be disabled if the object cannot be accessible in open access for some reason. Since the Creative Commons standard is part of this system, adequate legal protection of the material is ensured, because the choice of one of the licenses is a mandatory field among the metadata. There is the possibility of organizing objects into collections, which achieves easier access and review of materials, and of course, data transfer via the OAI-PMH protocol is enabled. Before setting up eScience – PHAIDRA had more than 15,000 digital objects, most of which were doctoral dissertations. Now, there are currently around 19,000 digital objects.

At the same time, it should be emphasized that the COBISS.SR system with its bibliographic database COBIB.SR and the normative file of personal names CONOR.SR is based on international standards for creating and transferring records. For the purposes of creating a researcher's bibliography, this system enables:

1. Creation of bibliographic records for various materials – monographic and serial publications, articles from scientific and professional journals and anthologies, non-book materials, events (e.g. lectures, presentations at conferences), even projects, protocols, patents – with all associated metadata.
2. Creation of normative records for author-researchers that contain the researcher's code that connects the record to the E-CRIS.SR database

and the ORCID research number for researchers who are registered in that database.
3. Input of verified data and creation of complete records, which are worked on by trained and experienced librarians.
4. Data and publications consolidation according to different criteria (authors, years, subject specification...).
5. Prints of bibliographies in different formats and citation styles.
6. The possibility of transferring data to other systems via the OAI-PMH protocol.

All the mentioned possibilities, especially in the context of the typology of the bibliographic unit, will prove to be crucial for the quality and sustainability of eScience. The advantages of relying on this system for the needs of eScience are reflected in the fact that there is already an integrated system that includes the creation of researchers' bibliographies and the depositing of works in full text in the dCOBISS sub-application, which is a kind of a digital repository. This sub-application includes both text processing and word-by-word search as it applies OCR when retrieving a digital document. The transfer of bibliographic metadata is done directly from COBISS, and administrative metadata is assigned in the *dCOBISS* application itself based on the copyright and permission of the author. Also, what will be shown in the implementation of eScience as a crucial quality of this entire system is the ability to export data in different formats, as well as a special quality automatic transfer and synchronization via the OAI-PMH protocol from the level of local databases.

One of the many examples of this preferred symbiosis could concern our scientists, as they are monitored by the Institute for Scientific Information within the international base called the Web of Science (WoS), which is probably the most important scientific worldwide bibliometric database. Since the leadership of its founder, Eugene Garfield, this Institute has been collecting publications and citations for more than half a century and processing them for scientific and statistical purposes. For the needs of Serbian science, the achievements of Serbian researchers within the "Ours in WoS" application were selected from this database, which is relevant for eScience. However, in order to avoid the creation of "dirty" or unprocessed data, librarians' proposal at meetings related to eScience always read: data transfer from "Our in WoS" to the Mutual Bibliographic-Catalog Database COBIB (IZUM from Maribor proposed for this the purpose of using the SRU protocol), then processing and extracting "clean" data into the National Bibliography of Researchers within the COBISS.SR system, and only then will that data be

transferred via the OAI-PMH protocol to eScience (1). This proposal was partially accepted due to the "timeline" of the project itself, but it should be borne in mind that its sustainability is sometimes more important than the "timeline".

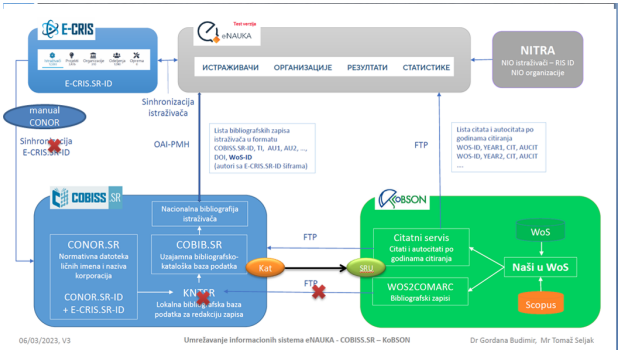

Figure 1. Data download scheme from "Ours in WoS" in eScience

In fact, this entire process should naturally be two-way in terms of general quality improvement – not only would COBISS with its associated entities help the sustainability and quality of eScience, but eScience should also initiate the improvement of the quality of records in the central library and information system of the Republic of Serbia and additional filling of those records in terms of document typology and complete validation of all scientific workers and scientific research organizations in the E-CRIS.SR database. The same applies to individual scientific research organizations' repositories because the eScience system would have to lead to an increase in their up-to-dateness, as well as an increase in the quality of the repositories themselves.

3 Open science as a prerequisite of the principle of transparency

Referring to the Open Science movement as an ecosystem is becoming common. This suggests a closer look at the basic characteristics of ecosystems. The basic definition says that it is a community or group of living organisms that live and interact with each other in a certain environment.

Natural ecosystems are balanced systems in which interactions between different organisms contribute to a certain stability. Also, natural imbalances tend to permanently offset each other. Some ecosystems develop slowly, while others can transform very quickly. In extreme cases, they may even disappear. Natural ecosystems do not have their own finitude or purpose.

This approach is an inclusive way to engage, think systematically, imagine a better future, and create it together. The modularity of Open Science enables ecosystems to emerge because it allows different but interdependent organizations to coordinate without full hierarchical agreement. Interactions and coexistence of different types of complementarity make them particularly interesting. This ecosystem's isolated parts represent organizations separated by "thin intersection points." The rules of engagement and the nature of standards influence behavior in the ecosystem and its success (Jacobides, Cennamo, and Gawer 2018).

Who decides the quality of a scientific article? Are these impact factors, which have themselves been challenged in numerous professional and scientific works? Although researchers largely believe that Open Institutional Publishing (for example – repositories or the Open Journal System (OJS) platform) is a waste of time, the harsh reality is that their articles – even those published in prestigious journals of major publishers – remain largely unread. So why do we pay for access to extremely expensive journals – mostly with taxpayers' money – when they don't provide real sustainability or increase the readability of scientific papers? Of course, it is one of the biggest businesses in the world, and every researcher cares about publishing something in a prestigious journal that belongs to one of the big publishers. However, is it only a matter of political will to support "open science" and the principle of transparency?

The industry's total revenue is huge. Before Corona, annual revenues were 19,000 million USD. The market is dominated by five large publishers: *Elsevier, Black & Wiley, Taylor & Francis, Springer Nature, and SAGE.* Elsevier is the largest, with a 16% market share: around 3000 journals, with a profit margin of 40%[1]. This means that this company is bigger than those known to the general public, such as Microsoft, Apple, and Coca-Cola.

Moreover, from 2010 to 2014, so-called predatory publishers took about 75 million USD and published almost half a million articles in about 8,000 journals (Shen and Bjork 2015). As of 2022, almost one-third of the top 100 publishers (by number of journals) could be considered predatory (Nishikawa-Pacher 2022).

1. Elsevier profit margin

Therefore, the process of transforming Open Access into Open Science is underway. In this sense, the following quote is very significant:

„The data Ecosystem appears to be moving away from centralization, it is becoming more diverse, and less integrated, thereby exacerbating the discovery and re-usability problem for both human and computational stakeholders (...) All research objects should be Findable, Accessible, Interoperable and Reusable both for machines and for people (...) The FAIR Data principles... help researchers adhere to the expectations and requirments of their funding agencies“ (Wilkinson 2016).

That is why there is currently a kind of movement away from profit-making business models that worsen inequality and are in contradiction with the UNESCO principles and values of Open Science, which are basically based on: 1. quality and integrity; 2. collective benefit; 3. fairness and equity and 4. diversity and inclusiveness. In the implementation of these values, significant – albeit uneven – progress has been observed in policy adoption and the creation of Open Access and Open Science infrastructure. But the main challenges remain:

- Changing the conventional scientific culture,
- Building the necessary human and institutional capacities,
- Establishment of adequate infrastructure (including connectivity),
- Review of criteria for assessment of scientific quality,
- Addressing negative or unintended consequences of Open Science practice.

The main function of Open Science is to ensure not only that scientific knowledge is available but also that the production of that knowledge itself is inclusive, equitable, and sustainable. Open Science is, therefore, not an end in itself but a means for fairer, more diverse, and inclusive research systems better directed towards the production, dissemination, and use of scientific knowledge that helps solve societal challenges for the benefit of all. Also, Open Science improves the quality of research: transparent, accessible methods and reusable results – facilitate the verifiability and reproducibility of research results – leading to greater quantification and reliability. Research efficiency is accelerated: the sharing and reuse of methods and results, which allows researchers to build on the work of others more easily and quickly, and this in turn, leads to faster research progress. At the same time, the impact of research increases: research methods and results are visible and accessible to the public and private sectors, and their inclusivity, valorization, and

practical application are facilitated – leading to improved trust and increased acceptance and use of research results.

What is necessary to implement all this is political support. In this sense, a positive example is the activity of the European Commission, which has been trying for years to increase and improve the share of Open Access in Europe. Nevertheless, the experts there know that it is necessary to speed up the entire process because the challenges we face as a society are so great that quick action is necessary. Ever since the Berlin Declaration, signed on October 22, 2003, the Open Science movement has continuously developed, facing various obstacles. Thus, in 2016, it was officially confirmed that scientific data desperately needs openness, better handling, careful management, the possibility of machine operation, and clean reuse[2]. Already in 2015, the Commission proposed to the EU Competitiveness Council the formation of the EOSC, which was followed by the Commission's initiative to form the Cloud in 2016 and the adoption of the Working Document on the EOSC Roadmap 2018-2020. This was followed by the Horizon 2020 project and an investment of 250 million euros by the European Commission for the creation of a prototype. The next phase should cover the period 2021-2027 and it envisages more active participation of EOSC member states, including Serbia, in the "opening" of national sciences.

In addition, in 2021, UNESCO adopted recommendations for Open Science[3] and immediately afterward proposed specific tools (UNESCO Open Science Toolkit[4]), which should facilitate the mentioned "opening" for all interested parties. In the period 2021-22, new Horizon projects have been approved, which concern Open Science infrastructure or regulations, such as the DIAMAS[5] or CRAFT-OA[6] projects. In 2022, the "Action Plan for Diamond Open Access"[7] was adopted, and last year, the conclusions of the Council of Europe on school publishing were also adopted[8]. Without going into the significant details of these documents, which are not the topic here, the essence of this acceleration is the following: to provide European

2. Realizing the European Open Science Cloud (EOSC) – a study commissioned by the European Commission to initiate the EOSC, accessed 20.10.2023
3. Recommendations for Open Science, accessed 20.10.2023
4. UNESCO Open Science Toolkit, accessed 20. 10. 2023
5. DIAMAS, accessed 20.10.2023
6. CRAFT-OA, accessed 20.10.2023
7. Action Plan for Diamond Open Access, accessed 20.10.2023
8. The conclusions of the Council of Europe on school publishing, accessed 20.10.2023

researchers in the first phase, and then innovators, companies, and citizens, an accessible, reliable and open distributed environment in which they can publish, find and re-use data and tools with each other for research, innovation and educational purposes, as well as access to relevant services. It is a long-term effort towards European harmonization and coordination between multiple research actors in Europe, including ministries and research funders, research organizations – meaning universities, academic libraries, research infrastructures and e-infrastructures – and other providers of life-related services. research data cycle.

Serbia started to follow the recommendations of the Berlin Declaration very early, so, for example, already on December 14, 2011, the University of Belgrade adopted a document approving the establishment of a repository of doctoral dissertations. Thus, since May 2012, it has been possible to deposit doctoral dissertations in electronic form in the Fedra repository (PHAIDRA), within which the E-THESIS subsystem was soon developed for the Universities of Belgrade, Niš, Kragujevac, and Priština (Kosovska Mitrovica). The Amendment of the Law on Higher Education (2014) removed legal obstacles to placing works in open access. In 2018, the then Ministry of Education, Science and Technological Development adopted the Platform for Open Science[9], and soon the University of Belgrade adopted its Platform[10] at the Senate session on March 13, 2019. Point 4 of this platform says:

1. It is necessary to change the awareness and current practices based on the "proprietary" attitude towards research results and primary data. The transition to a culture of open science implies the adoption of another system of values and incentives, which at the same time ensures greater transparency of science, reduces costs of dissemination of scientific research results, and contributes to fairer evaluation of researchers and their institutions.
2. It is necessary to optimize the organization of the publishing activity at the University of Belgrade, and adapt it to operate in the open access regime on a rational basis. In parallel, it is necessary to develop the modern IT infrastructure required by open science.
3. It is necessary to review the existing system of rewards and incentives in the career development of teachers and researchers, as well as the existing criteria for the evaluation of scientific contributions, in order to

9. Platform for Open Science, Ministry of Education, Science and Technological Development, accessed 20.10.2023

10. Platform for Open Science University of Belgrade, accessed 20.10.2023

integrate the values and good practice of open science into them, and to eliminate or make less important what is in conflict with open science."

On the basis of these documents (and even before that), a kind of repositorization began, both at the University of Belgrade and throughout Serbia and other scientific research organizations, and the central library and information system of the Republic of Serbia, COBISS, installed an extension of its system – *dCOBISS*, for depositing documents. In this way, all members of the University of Belgrade got, in a way, access to the infrastructure to provide open access. Numerous projects, events, conferences and days dedicated to open science followed, and the eScience project – crowns this multi-year effort and establishes a platform on the basis of which the entire society can profit, and the scientific community and its results – if certain technical shortcomings are eliminated and sustainable system is established – can become highly visible in the European context, fitting perfectly into existing European infrastructures, strategies and laws.

4 Transparency and what to do with it?

In the book Transparency or concern for taxpayers' money, the author Franci Demšar, former director of the Public Agency for Scientific Activity of the Republic of Slovenia, shows how the rapid growth of Slovenian science took place after the introduction and harmonization of the COBISS system, as a mandatory tool.

"In 1997, as a mandatory tool, we introduced, namely, the COBISS system, which today the majority accepts as something self-evident (...) I am personally convinced that it was this change that encouraged Slovenian researchers to start working for his publications more than before (...) Suddenly the 'weight' of a certain scientist became more concrete. Based on the review of published scientific articles, COBISS enabled a quick, transparent and reliable assessment of the importance of scientists in their own circle" (Демшар 2014, 62).

Therefore, the introduction of a transparent system – in a similar environment close to Serbia – caused a real small revolution, primarily in the attitude of researchers towards publication, as well as towards the evaluation and analysis of scientists in relation to the works they published. However, this is still not enough for an essential breakthrough and progress of national science. What is the essence – is the harmonization of funding of scientific research organizations and individuals with the results visible on

the portal. This is exactly what the eScience project expects at the next level. If, namely, the transparency of data is not coordinated with the holders of research projects and the priority of funding – then the system is worth nothing and is only a window into the happenings in a national science. This would then mean that the best researchers are not necessarily the holders of projects and financial resources and that academic careers in some cases continue to be "given away", regardless of scientific research results.

Mandatory registration of researchers' bibliographies in eScience (that is, master repositories and systems from which eScience will pull data), as a basis for evaluation and obtaining financial resources, in combination with better technical solutions (for example – a greater number of editors with full powers, preferably librarians, like to the COBISS system) – would lead to fundamental changes in the way and scope of publication, as well as in the general progress of national science, because the best would be supported in accordance with their results.

Only then will the introduction of such a transparent system – without any relation to vanity and academic positions – in which all essential information is available in a standardized and easy-to-understand manner bring the possibility of insight into the work of each individual researcher, and thus the establishment of a clear picture within the scientific research community. Of course, this will lead to a certain hierarchization among scientific workers but also encourages competition, as well as a kind of acceleration of national science in general, which will naturally lead to an increase in both the quantity and quality of scientific results. All this is because, in that case, the positioning of researchers and the evaluation of their scientific quality would not be based on lump sum ratings and "connections" in the academic community, but on reliable and standardized qualitative data.

Also, the long-term saving of funds invested in the field of science would be huge and evident, because today – let's admit it – still a very large percentage of invested funds does not bring any benefit to the growth of the influence of Serbian science and its progress in comparison with other regional scientific results. Again, the example of Slovenia is close to us and applicable in our framework:

"Considering that in Slovenia, as well as in the world, we have been happy to look through the eyes of taxpayers for some time, we can safely say that by introducing transparency in the field of scientific research, we saved 100 million euros of taxpayers' money in 2007 alone (...) In 2006, researchers spent 86 million euros less than they would have done according to the former logic, and if we add 100 million euros from 2007, taxpayers

could breathe a sigh of relief for a change when they hear that the Public agency for research activities in nine years (not at the expense of quality or quantity) saved several million euros of their money" (Демшар 2014, 66–67).

However, the essence of this saving would not be possible without the obligation to enter data into a transparent system (in the Slovenian case – COBISS and especially a little later SICRIS), nor – what is even more important – would there be increased scientific productivity and acceleration. In the mentioned book, it is clearly indicated that according to the old logic of things, the level of scientific production in the Republic of Slovenia from 2007 would be reached only in 2016.

If, therefore, through eScience, such or a similar transparent system is established in the Republic of Serbia, the publication of scientific works would no longer be taken lightly by anyone, and the Republic of Serbia, with its resources and the number of scientific workers, could make more than a significant step forward in the field of science in relation to the entire region.

To avoid confusion, the potential increased efficiency of Serbian science does not mean only an increased number of publications, but also a higher quality of them, as well as a greater involvement of science in the economy, more agile and better university curricula, and therefore professors. Namely, in the media we can often hear platitudes like "knowledge society", "cooperation between science and business", "greater investments in research and development," and the like, but we forget that science and research play a central role in achieving these goals. This should not be forgotten in the next phase of eScience implementation.

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