

Support to managing research activity

Achieving higher quality research activity with COBISS

After establishing himself as a successful scientific researcher at the Jožef Stefan Institute, **Franci Demšar, Ph.D.**, continued his career as the Secretary of State at the Ministry of Science and Technology. Later he was appointed Minister of Defence of the Republic of Slovenia and after that Slovenian Ambassador to Russia. Since 2004, Franci Demšar has been the Director of the Slovenian Research Agency. In November 2013, his book entitled **Transparency and the Concern for Taxpayers' Money** was published by **Mladinska knjiga** Publishing House in the Premiki series. Among other things, the book clearly demonstrates the way COBISS influenced the increase in productivity of researchers and a higher quality of research activity in Slovenia.

SOME EXCERPTS FROM THE BOOK

Introduction

I had been appointed Minister of Defence for a little over a month when the head of office surprised me with a question regarding the entertainment costs. The entertainment costs for the leading staff at the ministry were unusually high, by any means too high, he said. 'How could this be', I thought to myself; in the first month since starting this job, I had been so busy that I had not even had the time to invite anyone for lunch, let alone organize any expensive official events. The head of office, of course, did not know that, but what he did know, and had the invoices to prove it, was that eighty bottles of whiskey were ordered for the office each month. Only if the ministry had secret cellars the size of Fructal warehouses hidden somewhere would this mean that the whiskey was ordered for stocks, for the hard times ahead or just in case, but as it was, these eighty litres of whiskey a month must have actually been consumed. The whiskey was probably not drunk by the leading people at the ministry, who were not allowed to consume alcohol during working hours, and did not have enough free time to drink all that or they would soon meet their maker. For them to supply close and distant relatives with whiskey was highly unlikely and I also doubted that anyone (who was at least somewhat competent and decent) could be bribed this way. 'Something is wrong, whichever way you put it', I said, while the head of office remarked that this was definitely a step too far.

'Lord, help me', I thought quietly to myself, 'if this house is half as crazy as it seems. Perhaps I should start a disciplinary proceeding against the people involved so they would lose their jobs, and then recruit some first year students of communication studies instead; it would probably be easier that way'. But these people had been working there for years. They had families and not to mention the required know-how and experience, which is as important as being able to have a good think and to make a wise decision. So I had a good think and made the wise decision that involving the disciplinary board and dismissing the staff in this scope would not make any sense. However, something needed to be done, but with less radical measures. It is sad but true that people become more reckless when they think that no one is watching them. This is why I decided to prepare, together with the head of office, a basic form, which let the staff know, in a very straightforward and simple manner, that someone is always watching them when they are at work. We designed one single form for the purpose of recording entertainment costs, which the administrators gave to their supervisors to single-handedly fill in exactly what they required for entertainment purposes for the next month.

By doing so, everyone could see what the others had entered, and surprisingly, not even a single bottle of whiskey was ordered that first month. In the following months, this favourable tee-totalling

trend continued. No one ever mentioned that anything had changed, and to this day I still wonder whether they even knew that this form was in fact my idea. I hadn't really introduced any measures, I just used the mechanism of transparency, and the results were astonishing. When people realize that they are no longer perfectly alone but that their behaviour is public, they start acting differently.

This is what this book is about.

The breakthrough year

After a thorough analysis of the national system and scientific policy in the breakthrough year of 1998, I came to the following conclusion: right before the change in the researchers' work in 1997, an important institutional innovation was introduced in Slovenia, which could, although it seemed quite innocent, bring about a more active publishing of Slovene scientists. COBISS, which is today almost taken for granted although it has not been around for that long, was introduced as a mandatory utility in 1997. I personally believe that this change encouraged Slovenian researchers to put more effort into trying to get their works published compared to before. Implementing COBISS did away with a good dose of relativity, which prevailed also in the academic sphere. Suddenly, the "value" of a scientist became more tangible. Based on the overview of published scientific articles, COBISS enabled a fast, transparent and reliable assessment of the significance of scientists in their field of work.

Today, anyone who is interested, be it an expert or lay-person, can see what, how much and in what way researchers do their work. Due to this level of exposure to the "supervision" by colleagues and the general public, the interest of researchers to publish in prominent scientific journals increased considerably, and for the same reason, Slovenian researchers began to actively search for possibilities to take part in international research projects.

The implementation of the COBISS system caused a small revolution, especially with regards to the researchers' attitude towards publishing, but also in the evaluation of scientists based on their published works. When I was Secretary of State at the Ministry of Science and Technology, I was surprised to see the discrepancy between my own quality assessment of certain researchers and the assessment of research project principal investigators. Back then, a special characteristic of our scientific and research system was that the best researchers were not necessarily the project's principal investigators. Furthermore, I was surprised by the fact that academic careers were practically handed to some on a plate, so to speak, seemingly without any relevant scientific references, while others had a considerable number of publications but could not, despite their impressive bibliography, proceed in their careers. Fortunately, I started working at the Ministry right at the time when the COBISS system was being implemented and I believed that the system might help us solve this problem. I changed the rules of the game by enforcing that only those bibliographies which were available online and systematically organised in the COBISS system could be taken into consideration by the special commissions when applying for tenders for research and development projects.

The mandatory entry of researchers' bibliographies into COBISS as a basis for evaluation and financing, along with new information tools, has led to some prominent changes in the nature and scope of publishing. As researchers could apply for tenders using only the works typified in the COBISS system, the database was updated in no time. In merely three months, the number of entries increased twenty times; and today, there are more than two million records for Slovenian researchers entered in COBISS.

Introducing a transparent system of data dissemination, in which information is entered in a standardized way and in a prescribed and comprehensible form allowed for an insight into a researcher's

work and established more realistic relations within the research community itself. As the system was supported by up-to-date online solutions, it allowed everyone to see the scientific production of their colleagues. The open nature of information increased the interest of scientists to publish in the best journals as their results could not be easily overlooked anymore – transparency reveals not only shortcomings but also qualities. Both of these contributed to the fact that instead of using vague criteria when ranking individuals, the main criteria became their actual performance in the field of science and research, which means, of course, that the ranking of researchers on the scale of scientific excellence is far more realistic today than it was in the past.

The transparency of publications in research and development also had many other positive effects. Gradually, new habilitation procedures that considered the candidates' research results much more consistently were introduced. Of course, the “preferential treatment” in the selection process of candidates did not disappear completely, but it was at least decreased to some extent. On the other hand, the ministry that was competent for science at the time and later the Slovenian Research Agency started to introduce better evaluation procedures for the selection of science and research project principal investigators and managers. The new evaluation system, which has been established also as a result of COBISS, changed the relations within scientific institutions. It brought about a generation renewal, which led to the fact that today the population of Slovenian researchers is on average one of the youngest in Europe, which also contributed to a higher number of women in the field of science and research.

After establishing the COBISS system, the positioning of researchers and evaluation of their scientific excellence could no longer be based on partial or vague evaluations, but rather on reliable standardized qualitative data. Today, a researcher's bibliography can be examined by anyone – potential research partners as well as students. As the quality (and quantity) of published works can significantly influence the decision to collaborate or (for students) choose a mentor, scientific publications are no longer taken lightly.

The system of transparency introduced brought about important and tangible results. Slovenia, which shares entry conditions such as available financial means, number of researchers and division of international relations with other countries in the region, has an important advantage over others because of this system. Transparency encourages Slovenian researchers to achieve good results, for which they are also awarded with public recognition, as their research results are available to the general public, thanks to the information system.

Time for numbers

The system is a lot like the whiskey example I have mentioned earlier, only the currency is different. Considering that whiskey and scientific excellence have little in common and are therefore hard to compare, let us change the two into a currency we are all familiar with. By introducing transparency when ordering for the needs of the employees at the ministry, we saved EUR 700 on whiskey alone, which is quite a number. When providing money for scientific research at the national level, we are talking about several hundred million euros per year that should be spent most effectively. Figure 5 shows the expected and actual growth of publications of Slovenian researchers from 1993 to 2007. It suggests that in 2007 when the budget of the Slovenian Research Agency was approximately EUR 160,000,000, if the former publishing system had continued, the Agency could have ensured around 4,000 less scientific publications through project financing. Or to put it another way, considering the former system, in order to ensure the actual number of publications in 2007, the budget would have had to amount to EUR 260,000,000. Looking at things from the taxpayers' point of view, which is

popular in recent years in Slovenia and elsewhere around the world, we can say with certainty that by introducing transparency in the field of scientific research, we saved EUR 100,000,000 of taxpayers' money in the year 2007 alone. Moreover, if in 1997 there would have been no change in the productivity of researchers and we would still want to achieve higher numbers of publications in scientific journals, the funding would have needed to be increased every year. This means that in 1999, an additional EUR 5,000,000 (approx.) would have had to be provided for research; in 2000, the number would have increased to EUR 17,000,000, the following year to EUR 28,000,000, and a year after that to EUR 40,000,000. In 2003, EUR 52,000,000 would have needed to be provided from the national budget in order to achieve the actual growth of the number of publications; in 2004, the number would have had to increase to EUR 63,000,000 and in 2005, it would have amounted to EUR 75,000,000. In 2006, researchers spent EUR 86,000,000 less than they would have considering the former system, and if you add to this number the EUR 100,000,000 from 2007, the taxpayers will be able to breathe a sigh of relief for a change when they learn that, within 9 years (without jeopardizing the quality or quantity), the Slovenian Research Agency was able to save them several millions of euros.

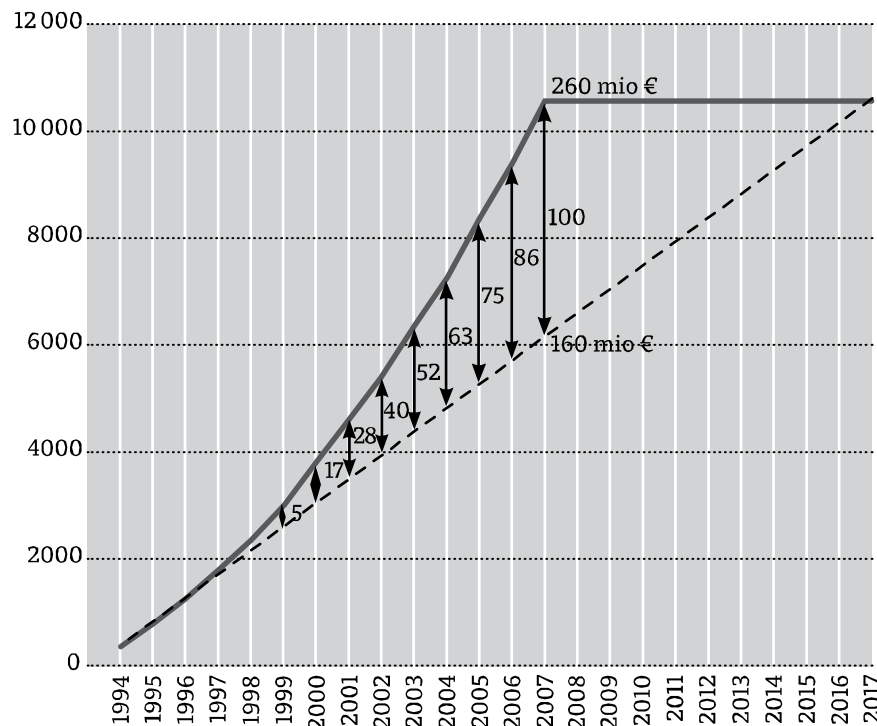


Figure 5 Cumulative growth of the number of Slovenian articles in the Web of Science international database in the period after 1993. The figure shows the budget of the Slovenian Research Agency for 2007 (EUR 160,000,000) and the number of million euros that would be required to maintain the increase in the number of scientific publications only by providing additional budget funds.

Perhaps this interpretation is a little simplified but nevertheless I can safely say that without implementing the COBISS system in 1997 and enforcing the mandatory entry of scientific and professional works, most likely there would be no increase in scientific production. In any case, the increase in growth would continue at the previous pace, which means that the level of scientific productivity of 2007 would be achieved no sooner than 2016. Therefore, by implementing COBISS, which is provided approx. one million euros per year for science infrastructure service from the budget, at least nine years of financing science were “saved”, which totals to over a billion euros. And that is a whole lot of whiskey.