

SCIENTIFIC INFORMATION IN POLAND AS A MODEL AND REPRESENTATION OF SCIENCE

Informacja naukowa w Polsce jako model i wyobrażenie nauki

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A – przygotowanie projektu badania | study design, **B** – zbieranie danych | data collection, **C** – analiza statystyczna | statistical analysis, **D** – interpretacja danych | data interpretation, **E** – przygotowanie maszynopisu | manuscript preparation, **F** – opracowanie piśmiennictwa | literature search, **G** – pozyskanie funduszy | funds collection

SUMMARY

Science as a corpus of scientific statements is a simplified image; science is a social phenomenon, inseparable from the context, to which scientific information also belongs. It brings us not only the contents of what science holds, but also the image of science, scientific roles, research priorities, and many others. It is not only that institutions, products and routines of scientific information reflect the features of scientific endeavours; they also point to what is important and worth making an effort. They surround the scholar as a "white noise", distributing a set of values, which are not fully verbalized and which are not openly taught. In earlier decades the dominating motifs were the scientific Weltanschauung and the respect

for hierarchies in scientific communities. Currently, in Poland, it is publishing in journals. Institutions of scientific information strengthen and proliferate that model, and a cultural complex has emerged, with articles and their citations as its constitutive features. Theoretically, the system of scientific information is designed to support also empirical research and data collecting. It is obvious, however, that these elements are not only less vulnerable to parameters; they are also not so directly linked to individual success. And just this remains an object of everlasting desire, preserving mental barriers, which keep the scientific endeavour in Poland far from teamwork and social responsibility.

Keywords: scientific information, reference service, science publishing, citations, research data

STRESZCZENIE

Nauka jako zbiór twierdzeń naukowych to uproszczony obraz; nauka jest zjawiskiem społecznym, nieodłącznym od kontekstu, do którego również należy informacja naukowa. Niesie nam ona nie tylko określone treści wypracowane w trakcie badań naukowych, ale także wizerunek nauki, rolę naukowe, priorytety badawcze itp. Instytucje, produkty i procedury informacji naukowej nie tylko zatem odzwierciedlają wyniki przedsięwzięć naukowych, ale wskazują również adeptom nauki, co jest ważne i warte wysiłku. Otaczając uczonego niczym „biały szum”, upowszechniają cały zespół wartości, które są słabo zwerbalizowane i nie podlegają świadomemu rozpowszechnianiu. Kiedyś w podejmowaniu przedsięwzięć badawczych chodziło głównie o wchłanianie wartości naukowych i poczucia hierarchii. Obecnie w Polsce jest to publikowanie w czasopiśmie; instytucje informacji naukowej

nastawione są na wzmacnianie i upowszechnianie tego modelu. Uczelnie systemy obsługi badań naukowych premiuje publikację artykułów, a w skali kraju wyrósł swoisty kompleks kulturowy z artykułami i ich cytowaniami jako elementami konstytutywnymi. Właściwie nie widać innej miary sukcesu naukowego, choć teoretycznie system informacji naukowej jest zaprojektowany tak, by doceniane były także badania empiryczne i gromadzenie danych. Widać jednak, że te elementy oceny są nie tylko mniej podatne na parametryzację – są także mniej bezpośrednio związane z indywidualnym sukcesem uczonego. On zaś pozostaje wciąż przedmiotem największego pożądanego, nadając trwałość barierom mentalnym, które oddalają naukę w Polsce od pracy zespołowej, a nawet od poczucia odpowiedzialności społecznej.

Słowa kluczowe: informacja naukowa, służby informacyjne, publikowanie w nauce, cytowanie, dane naukowe

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Awareness of information

Scientific information (SI), defined in the past with much stress laid on its supposed importance [1], can be loosely referred to as an apparatus external to scientific output, scientific procedures, and scientific institutions, yet serving the purpose of communicating scientific findings to their actual and potential users. It seems to consist of next to everything. First of all, it is a body of text. Then it is mostly what human phenomena happen to be – organizations, procedures and protocols, techniques, infrastructure, and values.

When we think of scholarship and knowledge, we seldom attach much significance to information and communication, considering it auxiliary and secondary. On the other hand, we are ready to admit, that without information and communication, knowledge is never a Zimanian social undertaking, and thus is no longer science [2]. Other kinds of knowledge can be created and transmitted with non-verbal personal experience and imitation, like arts and crafts, or with insight and enlightenment which are not subject to falsification, like religion. Scientific information wires expected data, information and knowledge with access points. Without them, they all remain an undiscovered land. Or perhaps do not exist at all.

Scientific information may take on the format of a system and it may not. We, in Poland, could expect that a real system would emerge from the SYNAT project, because of the copious government funding secured for numerous institutions, which, in the years 2010–2012, got involved in the quest for a “platform” to support science, education, and the “realm of national heritage” [3]. However, the very platform never came into being, nor blueprints for it; only several studies did. But does any country have a real system, feeding scholars with information from some giant integrated discovery and delivery service? Or is it enough to remark that scientific information satisfies itself with many intertwined systems, and exists wherever there is a wide field of diversified practice, reinforced with theories on its own, or if not theories, some kind of awareness?

The awareness seems to accumulate, especially around the issue of completeness and productivity. SI, no matter how systemic, if at all, is perceived as an installation which skims goods at one point (community, school, journal, country, discipline) and delivers them to certain destinations. These, again, are humans and organizations, or other installations, like books, libraries, repositories. The delivery is expected to be lossless, or relevant, and fertilizing. SI to science is apparently what agricultural tools are for crops.

White noise

When we take a second look, however, we experience the need for more adequate a metaphor. When it comes to nutrition, farming machinery never replaces vegetables; a bottle of milk is just void without that liquid. But in SI we encounter mixed messages and media, and next to the “internal” content of the scientific text, we have sets of intermediaries, textual in their nature (or, more precisely: lexical, narrative, pictorial, and tabular), which are not direct results of research,

but which open up the way to see and understand what they hold. Next to the actual scientific statements we have surrogates which also may contain some data and some information, and the borderline dividing those two kingdoms is not sharp [4].

It is obvious that we heavily rely on those resources; moreover, we do not try hard to fence them out. We use them, and by doing it, we consume scientific information very much the way that we consume science. First of all, we have abstracts and summaries, and we often read them not only to see what is worth “real” reading, but to gain some knowledge without actual reading at all (of the original full-length work). Then, we have reviews, new books columns, reports, popular works, press releases, which provide us with necessary context and, perhaps, help us build a general opinion, which precedes empirical work. Then, we have bibliographies, references, links, and citations, which let us know what sources are prevailing and worth following. Unless we have chosen to bring back to life some forgotten lines of thought and discoveries, we generally tend to stick with the winners. And then we have reviews of our works submitted for publication and numerous others, which we become acquainted with when we participate in the life of our learned community – seminars, faculty councils, grant projects, expertise. We are surrounded by white noise of scientific information, which tells us not only what to research, but also what to claim.

This relation can be reversed. As SI, as a white noise, is not exactly what we want, or what we think we should manage as information workers and use as scholars, we start looking for clear formal channels of communication. Perhaps this is the cultural source of the need of scientific information arranged as systems. But whenever we may think we are close to build and exploit such channels, we find them to contain not only “scientific” matter, but also social, and thus – political.

Symbolic overflow and productivity assessment

To start with, we used to have libraries, which performed reference work (ośrodki informacji naukowej – scientific information centres), usually by helping students and scholars consult printed bibliographies and indexes. The libraries had a potential of their own – now long lost – to show the adepts what science is, what its value is, how it is governed, how it grows. It was not mere practicality which stood behind establishing “central libraries” for particular areas of scholarship, it was also a social need of maintaining symbols and – teaching hierarchies which the scientific establishment found crucial to observe. – So we had the main medical library, the central agricultural library, the central military library – outside of the system of higher education (however, in Poland engineers and economists were sober enough to attach the label of central libraries to libraries of leading universities). Of course, it was at some point rationalistic to select one library which would hold “everything” on the topic, and to some extent it still is in the countries which have scarce information resources and inadequate technologies, but in Poland, with the advent of the era of automation

and telecommunication, those libraries mostly fell into oblivion or changed their scope of activities [5].

Eventually, library catalogues were the first finding aid to go online, books at some point became much easier to retrieve than journal articles. Later, articles also made their way to major library catalogues, like WorldCat. But before it happened, new tools were created to support searches in serial collections, namely bibliographic databases. They quickly started to assimilate new features – there were abstract databases, databases with citations, and eventually full-text databases, which did not neglect to include the abstract and the list of references of the paper, and also to inform about citations the paper received after publication.

This process was doubled by another one: the importance of a journal paper rose sharply in the 1990s, and in Poland, evidently – after the year 2000, because it provided material which was subject to statistics. With the economic and political necessity to measure productivity of particular scientist and scientific units, bibliographies of journal contents gained in unprecedented importance. Books, of course, also received citations, and Google Scholar monitored that process along the citations received by papers, but scientific information followed another way. Most effort was devoted to securing access to superb bibliographies of periodical contents, like Web of Science or Scopus. Books were not important, because expensive (i.e. natural and applied) scholarship seldom uses books for expression. There are periodicals and conference proceedings at stake there. SI practice, services and collections have been wrapped around papers and about the golden chains of subsequent citations. Costly services were imported by consortia (in Poland – mostly within the framework of the government-funded “national licence”), even if the actual common practice of users in need of pdf files was to search them by Google [6]. Seen from the level of tools handed to librarians or directly to scholars, scientific endeavour involved mostly writing scientific papers and collecting citations. Journals were and still are in the eye of cyclone, not that much critique, prizes, patents, prestigious scholarships, reviews, professorships and memberships.

Solutions and industries, made in Poland

Only one thing equaled receiving citations – publishing in a journal which had already been heavily cited. If it cannot be the actual Impact Factor, there are other ways for the paper to qualify as measurably prestigious. Then the citations are already collected for the lucky author by somebody else – her or his labour was not to write a citable paper, but to place a paper in a hard-to-get title. – In this country we have now a whole industry, devoted to feeding the race of scientific journals, all 3.5 thousand of them or so, indeed a scholarly Derby. Nobody has counted the cost – perhaps forming a major item in the research budget of the country.

Thus, scientific information, with the support of research managers and tycoons, is showing us science as a paper writing business, or not even as much writing as publishing. And not indeed all of the publishing, just “being there”. Not having succeeded in setting up a single platform for scientific information [7], but ha-

ving enough services supporting quick and effective literature searches, the country is currently testing POL-on, zintegrowany system informacji o nauce i szkolnictwie wyższym [the integrated system of information on scholarship and higher education] (<https://polon.nauka.gov.pl/>). *Polska bibliografia naukowa* (PBN, Polish Bibliography of Science), which is associated with POL-on, does cover books, but it does not cover citations. The emerging POL-index, a database of journal contents, will cover citations [8]; the way the data are collected brings about the human repetition of the work performed by Google robots. Books remain no focus; most of them are noted in no module of POL-on or PBN, but in NUKAT, a union catalogue established in 2002 by academic libraries. NUKAT does not inform of citations either. But it remains the only tool to watch texts originating in Poland as they are absorbed by the other countries’ information networks by the way of being included into library collections (please note that advanced library catalogues include electronic publications) or by publication of translations. But NUKAT is not the cream of scientific information in Poland, and it does not reflect or support the basic model of the scholar as a submitter of successful papers to highly cited journals.

Obviously, the well-deserved BazTech (<https://baztech.icm.edu.pl>) and BazEkon (http://kangur.uek.krakow.pl/bazy_ae/bazekon/) are interested mostly in journal contents. So is the agricultural service AGRO (<http://agro.icm.edu.pl/>). The newly-established BazHum (<http://czasopisma.bazhum.hist.pl/>) faithfully follows in the wake. But several other databases maintained by research libraries are mostly traditional bibliographies.

From publications paradigm to data paradigm?

And there is yet another service – a hosting and aggregating platform YADDA (<https://ceon.pl/pl/oprogramowanie/yadda-main/platforma-yadda>), designed and operated by the University of Warsaw Interdisciplinary Centre for Mathematical and Computational Modelling. We cannot understand why it cannot grow into what SYNAT was going to become, and to what extent its work will be repeated by numerous operators gathered around POL-on. We are mentioning YADDA here because on the home page of its website it lists data as a material that it can store. We are curiously looking at it, because there is practically no mention of data and data repositories in the scientific information discourse. Research organizations do busy themselves with data, but they are not open databases, and their existence – along with the importance of both collecting data and of making them accessible for scholars, as well as for interested public – is missing the lay eye. We are aware of the importance of the topic, and of the fact that it would require a separate study. It just seems worth stating here that orientation on research data in information practice might substantially change the image of science in Poland – from that of personal success guaranteed by well-located and positioned written work, to that of revealing secrets of nature or of culture in the field or in a lab. The absence of this model tells us a lot about the condition of scholarship in Poland, somewhat more than metrics.

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The author does not report any conflicts of interests.

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2. Ziman J. *Public knowledge: an essay concerning the social dimension of science*. London: Cambridge UP; 1968.
3. Synat System Nauki i Techniki. Utworzenie uniwersalnej, otwartej, repozytoryjnej platformy hostingowej i komunikacyjnej dla sieciowych zasobów wiedzy dla nauki, edukacji i otwartego społeczeństwa wiedzy [online] [cit. 12.01.2016]. Available from URL: www.synat.pl.
4. A further study may show that the theory of paratext, developed by Gérard Genette for literary works, applies here. Cf. Genette G. *Paratexts. Thresholds of interpretation*. Cambridge: CUP; 1997.
5. Probably the National Library of Technology (<https://www.techlib.cz>) is an impressive example of how this trend could be avoided and reversed. On the other hand, we visited some time ago a central medical library in a country which happened to escape most of the shift towards democracy in Eastern Europe, and it was probably the only research library in the country, in which we could hardly spot any computers. It did not look a busy place, either. A most dignified professor was naturally the director of that library, and he gave us a treat in his office.
6. Studying the scientific information practice of JISC in the UK in the years 2010–2011, this author noticed, that their "national licence" NESLi2 brought to England, Wales, Scotland and Northern Ireland mostly full-text journals, and not many bibliographic or bibliometric resources. Cf. Derfert-Wolf L., *Zarządzanie licencjonowanymi zasobami elektronicznymi w skali kraju. Przykłady zagraniczne*. In: Dudziak D, Ziótek M., red. *IV Wrocławskie Spotkania Bibliotekarzy*. Wrocław: Oficyna Wydawnicza Politechniki Wrocławskiej; 2014: 263–284.
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8. Specialized databases like BazTech and BazEkon, which are products of academic libraries cooperation, have done it for years now.

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