Open access to data on science and higher education

A case study of the RAD-on platform in Poland

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The rationale behind RAD-on

The growing number of databases, despite its obvious advantages, also brought negative consequences that required a systemic solution.

01 Data dispersion
No central source of access to data for citizens, journalists, scientists and public administrators.

02 Poor data integrity
Data from individual IT systems occasionally conflicted with that of other systems.

03 Few possibilities for analysis
No visualisations of data, no advanced BI tools.

04 Limited machine data processing
No central point of access to raw data and machine data retrieval services.
A simplified architecture of RAD-on

Abbreviations and detailed information on the data source layer:

POL-on 2.0 – a system of information on science and higher education

Inventorum – a system that facilitates science-business cooperation

Polish Science – data on Polish scientists and their research

OSF – a system for managing funding for science

SSSR – a support system for selection of reviewers

ORPPD – a national repository of written diploma theses

PBN – a database of Polish scientific publications

SEDN – the System for Evaluation of Scientific Achievements in Poland
The final product

Functionalities and their development
Reports, Analyses and Data on the science and higher education system in Poland – RAD-on

The National Information Processing Institute and the Ministry of Education and Science in Poland

www.radon.nauka.gov.pl
Dynamic reports for public and non-public use

The reports section of the RAD-on platform is a dashboard that presents statistics as interactive tables and graphs. Each analytical report is complemented by methodological and expert comments. Users can download data in CSV or XLSX formats.

www.radon.nauka.gov.pl
Dynamic reports for public and non-public use

Users select filters to answer questions, including:
‘How many higher education institutions are there in Poland?’; ‘What courses do they offer?’; ‘How many students are enrolled at each higher education institution?’; ‘How many of them are foreigners?’; ‘Which courses are the most popular among students?’; and ‘What salaries might graduates of this programme expect?’.

www.radon.nauka.gov.pl
Complex analyses of the higher education and science sector

Interpretation of statistical data can prove challenging for non-experts, even when only descriptive statistics are presented.

The scientists and experts of NIPI constantly work on more complex analyses that can be divided by subject – including science and innovation, higher education and people of science.

www.radon.nauka.gov.pl
Complex analyses of the higher education and science sector

Users can download complex reports in PDF format.

www.radon.nauka.gov.pl
Application Programming Interface

A uniform programming interface – REST API enables free and public access to the RAD-on databases.

www.radon.nauka.gov.pl
Application Programming Interface

REST API allows users to quickly and efficiently download data that is useful in conducting analyses and in creating statistics, reports and summaries.

www.radon.nauka.gov.pl
Application Programming Interface

Users can develop original solutions and applications that require access to data on higher education.

www.radon.nauka.gov.pl
Integrated access to data

Lists of data from different subject categories, such as institutions of higher education and science, scientific and artistic achievements, academic staff, and researchers can be viewed using filters and downloaded in CSV or XLSX formats.

The data is also available for machine download using the API service.

www.radon.nauka.gov.pl
Integrated access to data
A full-text search engine based on the Elasticsearch tool (Andhavarapu 2017) that analyses all of the source databases and is useful discovering semantic correlations among data. Users can search openly, without creating user accounts.

www.radon.nauka.gov.pl
A single point of entry for data correction

This allows users (primarily scientists, R&D experts and students) to discover whether their personal data is being processed in any of RAD-on’s integrated systems. If so, they can download reports containing their data to verify its correctness.
A single point of entry for data correction

Access to the citizens’ data service is offered through a central authentication module provided by the Polish National Electronic Identification Node. The node verifies a user’s identity; RAD-on then matches this identity with its source systems.

www.radon.nauka.gov.pl
Single point of entry for data correction

After downloading their data, users can verify it and, if necessary, react to errors. The time between reporting and updating is as short as possible.

The updated data feeds into RAD-on’s integrated systems, which enables Polish citizens to have a direct impact on the correctness of their data.

www.radon.nauka.gov.pl
Project impact
11 TB data released online

**EXPECTED**

9 individual databases integrated

26 528 290 number of downloads of documents containing public sector information per year

Our analyses and reports are frequently cited by journalists and representatives of governmental bodies

**REAL-WORLD APPLICATIONS**

actual decision-making – not only on governmental, but also organisational!

RAD-on Publication API service is used by major universities in Poland to integrate internal systems that report the scientific achievements of their researchers for evaluation purposes

**INTERNATIONAL COMPANIES**

use RAD-on to identify Polish R&D experts
RAD-on is the first fully integrated system for science and higher education that enables access to governmental and other data from multiple databases.

Users can interact with data in a variety of ways, depending on their analytical skills and level of authorisation.

Programmers and data scientists benefit from an integrated API; whereas researchers prefer to download pre-defined tables and visualisations.

RAD-on offers the most up-to-date and credible information, as scientists or students can correct their own data through a single point-of-entry.

Journalists and the general public can download comprehensive analyses with in-depth interpretation of data.

Decision-makers who can access non-public data benefit from more advanced dashboards created using the BI tool.
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