



# Open access to data on science and higher education

## A case study of the RAD-on platform in Poland

Sylwia Ostrowska

## The rationale behind RAD-on

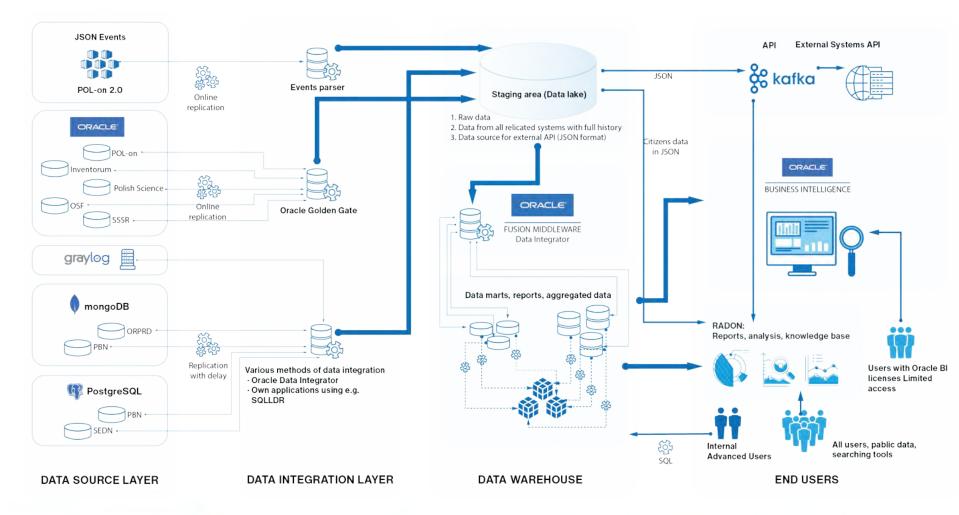


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The growing number of databases, despite its obvious advantages, also brought negative consequences that required a systemic solution

#### Limited machine data processing No central point of access to raw data and machine data retrieval services

# A simplified architecture of RAD-on



#### DATA WAREHOUSE - PROCESSING AND ARCHITECTURE

- RAD-on integrates data from the following systems:
- POL-on a system of information on science and higher education
- PBN a database of Polish scientific publications
- SEDN the System for Evaluation of Scientific Achievements in Poland
- 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



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# The final product

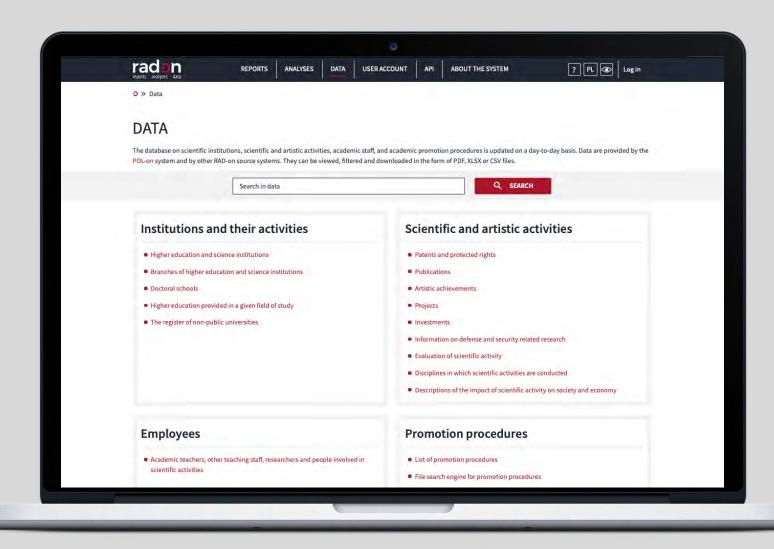
Functionalities and their development



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.

The platform integrates all of the systems and state registers, and makes data on the science and higher education available in a single place and in an open manner.



## Integrated access to data

Lists of data from different subject categories, including institutions of higher education and science, fields of study, scientific and artistic achievements, academic staff, and researchers.

The data comes from the <u>POL-on</u> Integrated System of Information on Science and Higher Education:

- the central reporting system for the science and higher education sector
- data model and obligations defined in legal acts
- data entered into the system only by authorised entities (e.g. universities, scientific institutions, government ministries).



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# Integrated access to data: Institutions

List of institutions (as well as other lists of data) can be viewed using filters and downloaded in CSV or XLSX formats.

Users can view institution profiles containing detailed data of a selected university or scientific institution.

The English version is not yet fully available.

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Number in the register of non-public universities	2					
Status of institution	Działająca					
Identification numbers						
Legal entity statistical number (REGON)	011021150					
Tax Identification number (NIP)	5260009816					

# Integrated access to data: Institutions

The publicly available data on institutions is specified by law. It includes:

- basic data (e.g. name, managing person, supervising authority, type, status)
- identification numbers (e.g. legal entity statistical numer, Tax identification number)
- contact data
- address data

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# Integrated access to data: Institutions

Each institution's profile contains links to related resources:

- branches
- fields of study and doctoral schools
- employees
- scientific and artistic activities (artistic achievements, patents, projects, publications)
- investments
- promotion procedures
- evaluation of the scientific activity of the institution
- data in the register of non-public universities

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ADMINISTRACJA				
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Name	Administracja			
Institution responsible for providing education	Akademia Finansów i Biznesu Vist	ula; Akademia im. Aleksi	ndra Gieysztora	
Level	Pierwszego stopnia			
Profile	Praktyczny			
ISCED	0413 Zarządzanie i administracja			
Date of establishment	1995-04-28			
Do studies prepare students to be teachers	Nie			
Do studies pertain to a foreign philology	Nie			
Joint study programme	Nie			
Status	Prowadzone			
Disciplines				
Disciplines				
	line name		Percentage	is the leading

# Integrated access to data: Fields of study

The publicly available data on fields of study is specified by law. It includes:

- basic data (e.g. name, institution, level, profile)
- the disciplines in which programmes are delivered
- the legal basis for the creation of fields of study
- launch data (e.g. form, professional title, language of instruction)

The English version is not yet fully available.

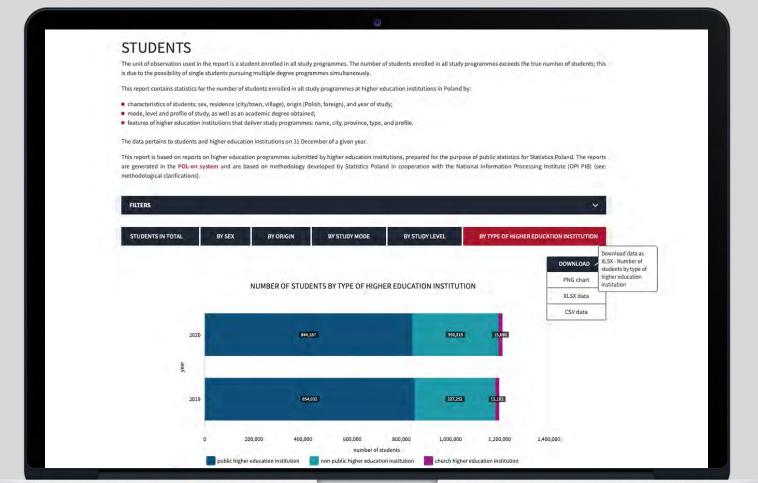
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databases publicly and free	ely available. Thanks to REST istics, reports and summarie	API, users can quickly	y and efficiently down	load data which may pro	ve useful, among oth	<sup>r</sup> API, which has made RAD-on ers things, for conducting analyses out higher education.
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# Application Programming Interface

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

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

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



# 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.

The reports are fully available in English.

#### STUDENTS

The unit of observation used in the report is a student enrolled in all study programmes. The number of students enrolled in all study programmes exceeds the true number of students; this is due to the possibility of single students pursuing multiple degree programmes simultaneously.

This report contains statistics for the number of students enrolled in all study programmes at higher education institutions in Poland by:

- characteristics of students: sex, residence (city/town, village), origin (Polish, foreign), and year of study;
- mode, level and profile of study, as well as an academic degree obtained;
- e features of higher education institutions that deliver study programmes: name, city, province, type, and profile.

The data pertains to students and higher education institutions on 31 December of a given year.

This report is based on reports on higher education programmes submitted by higher education institutions, prepared for the purpose of public statistics for Statistics Poland. The reports are generated in the POL-on system and are based on methodology developed by Statistics Poland in cooperation with the National Information Processing Institute (OPI PIB) (see: methodological clarifications).

SEX	RESIDENCE	FOREIGNER	YEAR OF STUDY
woman man	city/town	i yes no	Select ~
STUDY MODE	STUDY LEVEL	STUDY PROFILE	PROFESSIONAL TITLE OBTAINED
full-time     first-cycle     part-time     long-cycle     long-cycle		general academic practical unspecified profile	Select
CHARACTERISTICS OF HIGHER EDUC	ATION INSTITUTIONS		
NAME OF HIGHER EDUCATION	CITY/TOWN	PROVINCE	TYPE OF HIGHER EDUCATION
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PROFILE OF HIGHER EDUCATION			

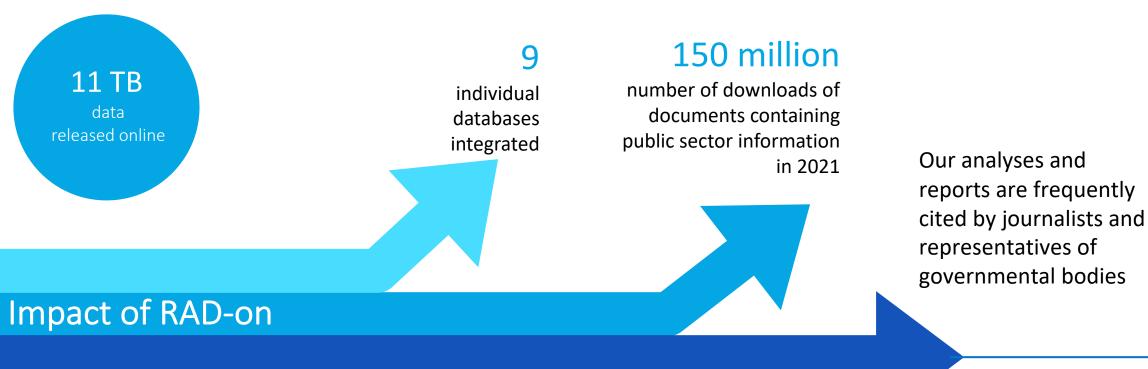
# Dynamic reports for public and non-public use

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?'.



# Project impact



#### **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

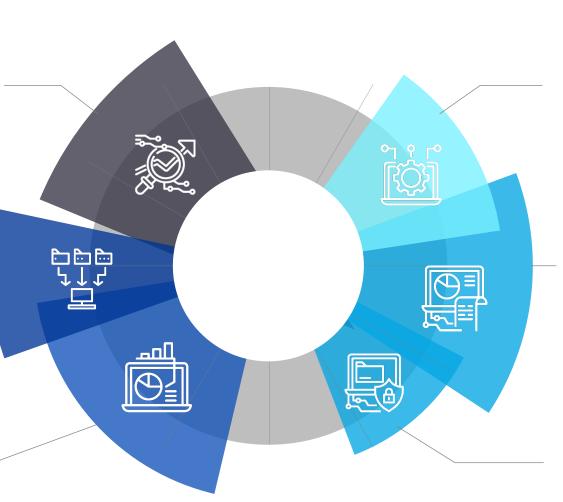


RAD-on is the first fully integrated system for science and higher education that enables access to governmental and other data from multiple databases.

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

Journalists and the general public have access to the **list** of data and comprehensive analyses with in-depth interpretation of data.





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-todate and credible information, as scientists or students can correct their own data through a single point-of-entry.

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





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