The usage of open infrastructures for an alternative assessment of the quality of research outputs

Vladimir Otasevic

University of Belgrade - School of Electrical Engineering
Why is assessment important and what is the problem? (1)

• Overview:
  • not all research outputs are recognized, and there are no mechanisms to trace and appraise all outputs (datasets, software, etc.)
  • So, what about them?
  • Scopus and Web of Science citation indexes have a significant impact on the quality assessment of research outputs
  • Are there any alternatives?
  • researchers produce scientific outputs that cannot be assessed using traditional approaches
  • Is it valuable if it is not assessable using quantitative indicators?
Why is assessment important and what is the problem? (2)

- How does assessing reflect on different types of entities in the process of research evaluation:
  - Research output
    - Quality, impact, influence, level of successfulness
  - Researchers
    - Monitor, ranking, related objects
  - Institutions
    - Track quality of researcher’s productivity, projects, capacities
  - Decisions-makers
    - Decisions on different level
Traditional (Highly influential) citation indexes

- Scopus and Web of Science:
  - Used for assessing and defining criteria for research promotion and career development
  - Regulations adopted by local decision-makers
  - High pressure to publish research output in indexed journals
  - Recognised as highly influential
  - Commercial products -> black box
  - Further functionality developed as an additional tool/software that base their implementation on indexed data
  - Subscriptions
Alternative databases

- Tracks research output impact on other source (Social media, research networks, blog, posts,...)
- Supports tracking research with predefined parameters
- Provides APIs that can be integrated with existing infrastructure.
- Usually, data are available for outputs that have a DOI

- alternative to traditional citation database
- considered to be more open and inclusive than traditional database
- Contributes to open infrastructures through open APIs that can track the impact of research outputs across the Internet
- Usually, data are available for outputs that have a DOI
Open databases

- Fully supports the founding principles of Open Science
- Compliant to the FAIR data principles
- Upgraded with a system that provides persistent identifiers (PIDs)
- Provides APIs in different forms (SPARQL endpoints, REST, Search Interfaces)

OpenAIX

- Acts as a collector and aggregator of different sources (ORCID, ROR, DOAJ, Unpaywall, Pubmed, etc.)
- Supports integration with custom solutions for providing knowledge graphs, system for recommendation, search engine, etc.
- Expected during summer 2022 to launch new tools that support the full web UI
- ... Until then we have to be satisfied with APIs 😊
Traditional + Alternative + Open = Assessment

- **Sustainable**
  - Must be accessible to single user (researcher) or group of users (institution) without affecting their sustainability

- **Applicable**
  - In different scientific fields, productivity is measured based on different types or research outputs

- **Integrable**
  - Data and/or software support integration with existing research infrastructures and services

- **Trustable**
  - Collected/indexed data are gathered by using reliable methods or by exchanging information with other trustable sources

- **Verifiable**
  - To provide functionalities that can be used for tracking the validity of metric scores or other retrievable data