

How to Meet User Needs by Generating Report on Scientific Publications in IAS IMCS

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Abstract

The possibilities of generating reports on scientific publications in informational analytical system being developed are described in this paper.

Keywords: informational analytical system, report generation, scientific institution, indicator.

1 Introduction

Management of scientific activity of a research institution (RI) like management of activity of any other institution needs informational support. Nowadays for such purpose Informational Analytical Systems (IAS) are used. By virtue of specifics of RI activity (non-materiality of produced production, creative character of activity, etc.) the IAS necessary for RI has to possess some peculiarities also.

Below we formulate peculiarities which are the most important ones in our opinion for IAS of RI.

1. Given that the indicators monitoring research activity may differ substantially both quantitatively and qualitatively, at the base of the system there should be collection, storage and processing of primary data about scientific activity [1,3]: publications of institution's scientific researchers; scientific projects, executed by institution's scientific researchers; theses defenses; participation in scientific forums, etc.

2. Primary data about scientific activity must have a balanced granularity so as to allow on the one hand, identification of the requested data, and, on the other hand, do not contain too many details. The system should be fairly complete (in terms of diversity of data filling it) and flexible (in terms of diversity of selection criteria and methods of combining them) in order to provide the user with necessary information even if the reporting forms are changed.

3. Data has its own history, which should be reflected in the system. Any information may be changed: geographic names, names of institutions, specialities, names of individuals, job descriptions, titles etc. So it is necessary to provide a mechanism to identify a record in whatever historical form it would appear.

4. The system should be centralized, multi-user, public within the definite range of users, as simple as possible in administration, provide comprehensive information in convenient for user format (report form), and ensure data protection. Not of less importance factor is also the usage of open source solutions, the license of which satisfies their usage in noncommercial purposes.

Such type of IAS is under development in the Institute of Mathematics and Computer Science of Academy of Sciences of Moldova – “IAS IMCS” [1-3].

2 Data on scientific publications in “IAS IMI”

In “IAS IMCS”, data on publications practically includes information generally accepted in all bibliographic information systems: title of publication, authors, publishing house, year of publication, type of publication, etc. The main part of data on publications is stored in “table for publications” – one record per publication.

Such characteristic as “publication type” in “IAS IMCS” is even greater oriented on indicators used to monitor the scientific activity. In compliance with the principle of information granularity, all possible publication types are presented in special table. Each record from “table for publications” refers to this table. Owing to this relation, the query by publication type provides the list of all needed publications

for the respective indicators.

Another characteristic, such as name of the author is specially attended as well. Due to the fact that different publications have different number of authors, there is “table for authors” – one record per author connected with the “table for publications”. This record contains author name as it is written in the publication. The peculiarity of IAS for RI is the necessity to connect publication with the researcher. So, in “IAS IMCS” the “table for authors” connects also publication with “table for persons”. Because of publishing in different languages, legal name changing, etc., a researcher can have publications with various name writing and spelling. Owing to the relation between the “table for persons”, “table for authors” and “table for publications”, the query by the name of the researcher (as it is written in his passport, hence in “table for persons”) generates the list of all his publications regardless of how and in what language his name is written originally in the publication.

3 Reports on publications

With the help of analytical tools of “IAS IMCS” it is easy to get necessary information on publications, using filtering by different criteria which correspond to fields of the tables with data on publications: publication type, author name, name of collection (journal, proceedings, etc), editor, year(s) of publication, etc.

Tools for reports generation allows to save the selected information in XLS or XML format. The obtained files can be easily used – adapted to reporting requirements. The authors didn’t put the aim to get the report in a ready form, offered by some administrative body. On the contrary, since these forms change permanently, the aim was to obtain data and indicators values which can be easily inserted into these forms.

Suppose, that the user needs the list of chapters in monographs, published by researchers of RI during last 5 years. For this purpose, filtering of the whole list of publications is needed by the following criteria:

- publication type: “chapter in monograph”;

- publication years: 2007-2011.

The filtration result can be preliminarily prepared for its handy representation in XLS or XML format: the user can change the order of columns with information, exclude unneeded columns, sort data in the grid by one of the column.

The report (generated in XLS format) contains heading and columns with selected information. In the heading there are: date of report generating, number of selected records, list of filtering criteria. Besides the columns coinciding with the columns in grid, there is the column "Summary". It contains the information from all other columns "stuck together" like it is in usual lists of publications. Taking into account the variety of standards for presentation of publications lists, the tools generates formula for the column "Summary". Changing this formula by means of Excel allows approximating needed standard.

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