

From Data Collection to FAIR Use in CRIS. The Case of University of Vienna

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Abstract

Current Research Information Systems (CRIS) have been implemented at Austrian Universities, as in many other European countries, with the incentive to account for scientific conduct of Universities. The CRIS at the University of Vienna – u:cris – has been implemented starting with 2012-2013, as a follow-up project of the previously deployed CRIS. It was the main aim of the project to reflect the critique the former system encountered – poor maintenance of profiles, missing options for the presentation of academic profiles.

In addition to the more advanced options for maintenance and presenting of academic profiles, u:cris is used since 2016 as tool for the administrative accompaniment of applications for external funding and the documentation of research projects and related research outcomes. The introduction of a module tracking the activity of applications for external funding and documenting successful applications for research projects at University of Vienna, needs to be considered as a major shift in University of Vienna's governing of academic activities. With the introduction of the module individual researchers can take full responsibility for the representation of the life cycle of their academic research projects, from the application to published research outcomes and media coverage.

In this paper we will briefly introduce the organizational structure of University of Vienna and the position u:cris as a system for the organization and documentation of academic activities takes herein. This will help us elucidate how individual researchers take action in u:cris and how data in u:cris is validated and made available for reporting and presentational purposes at intra- as well as inter-institutional level.

Introduction

University of Vienna, founded in 1365, is amongst the universities with the longest academic tradition in Europe. As of 2018 University of Vienna covers nearly all scientific disciplines excluding Human and Veterinary Medicine, organized along 15 faculties, 4 centers and 19 research platforms that are scattered in 65 addresses all over Vienna. Until April 2018 more than

138.000 research publications have been registered in University of Vienna's institutional CRIS – u:cris. Since 2007 University of Vienna attracted 44 ERC Grants and yearly extramural funds sum up to approx. 80 Mio Euro (as of 2016).

Universities in Austria are run as public institutions mostly financed by governmental block grants. With the introduction of the University Act 2002 (UG 2002) universities in Austria have been endowed with a high degree of autonomy, especially with regard to the structural, functional and epistemic organization of the research they carry out, to the repertoire of research problems that are addressed and concerning the economic autonomy (cf. Estermann, Nokkala, & Steinel, 2011).

Autonomy of Universities in Austria and CRIS

As institutions mainly financed via federal block grants, universities in Austria take the full responsibility for their inner organization and have full control over budgets and tenure of research and teaching staff. Although no formal Research Evaluation System (RES) like in other European countries and most prominently Research Assessment Exercise (RAE) and Research Excellence Framework (REF) in the United Kingdom (cf. Burrows 2012; Felt, Glanz 2002; Wouters, Thelwall, Kayvan, Waltman, de Rijcke, Rushforth, Franssen 2015) or the indicator based system in Australia (Butler 2017, 2003) the autonomy granted to universities goes in hand with full accountability of universities for their financial conduct and scientific performance.

It is only with the implementation of UG 2002 that universities in Austria are required to deliver a yearly report on their financial and academic conduct through an annual Capital report (UG 2002, §13 Abs. 6 and § 16 Abs. 6) to the federal government. This intellectual capital report aims at providing a complete overview on the structure and activities of Austrian Universities (cf.

Wissensbilanzverordnung 2016), including main research focus, human resources, number of degree programs, number of students, knowledge and technology transfer to society and industry, cooperations with national and international partners and number and character of research achievements in form of publications and academic activities. A further important constituent of university autonomy in Austria is that universities have the opportunity and associated responsibility to contend for extramural funding – beneath basic funding guaranteed by Austrian government.

Thus – beneath the transition of the university from a ‘hollow organization’ under the governance of the federal ministry for Science and Research (BMWf) towards an organization with increased intra-organizational central managerial control and authority (Gläser, Lange, Laudel, Schimank 2010) – universities see themselves faced with the necessity to compile data on the organization of their research. The secondary purpose of such a system is to inform decision making regarding research goals on an organizational level. Albeit earlier Current Research Information System (CRIS) projects have been initiated at Austrian universities, the use of these has not been mandatory for researchers and in consequence extensive and comprehensive research achievement data was not readily available to university management. Thus, Universities in Austria started implementing a second generation of CRIS, in which from that period on research staff was obliged to register their research achievements, with the incentive to account for their scientific conduct (cf. e.g. Estermann, Nokkala, & Steinel, 2011; Felt & Glanz, 2002; Hug, Ochsner, & Daniel, 2013; Lunn et al., 2012; Sivertsen, 2016).

In 2006 the University of Vienna’s institutional CRIS has been deployed as an in-house- development under the acronym RAD (Research Activities Documentation) in order to guarantee for the reporting imperatives against the federal government and to serve as source of data for informed strategic decision-making processes at University of Vienna. RAD has been operated as a system in which individual researchers are held to register their research outcomes in form of publications and academic activities. But otherwise RAD did not offer the opportunity to users to monitor, present or re-use the registered data through a user-friendly interface. Thus RAD – missing intuitive means of maintaining and presenting academic profiles for individual researchers and research entities such as faculties, centers, research platforms of departments – needs to be considered as a black-boxed system that by large has been perceived as a machinery of surveillance by researchers.

Reasons for choosing a commercial CRIS and challenges during the process of implementation

Mainly due to the reasons mentioned above the former system RAD has been replaced in 2013 in favor of a more user friendly and technologically advanced CRIS. Furthermore, the in-house development team could not guarantee for ongoing development and product enhancements because of scarcity of resources. This resulted in the situation that the CRIS developed in house at University of Vienna could no longer either hold up to the expectations of its users nor reach the level of technological refinement that the younger generation of commercially available CRIS were able to provide. In the process of market exploration for an up-to-date CRIS, the central management of University of Vienna favored a readily available vendor system over the (in-house) development of a customized system, as this not only makes allocation of needed resources more plannable but has also been regarded as a booster of acceptance amongst researchers at University of Vienna. The high degree of standardization that comes along with a vendor CRIS was regarded as an important asset by the team responsible for surveying the youngest and most promising developments in the domain of Research Information and Management Systems.

The now deployed CRIS at University of Vienna – u:cris – has been implemented starting with 2012-2013, as a follow-up project aiming at reflecting the main points of critique of the previously deployed RAD building up on the Research Information Management (RIM) software PURE by Atira/Elsevier¹. University of Vienna has licensed following Modules of PURE: Administration Module, CV Module, Import Module, Custom Portal and Award Management Module.

The process of implementation has been accomplished within four years and was organized along two major phases. First the core modules (Publications/Activities/Master Data) have been taken into operation within October 2012 to November 2013. In the second phase, from 2015 to 2016, the Award Management Module – allowing the monitoring of research projects from the stage of application through the documentation of granted awards and project outcomes – was successfully implemented. The challenges University of Vienna had to cope with have been the scale and complexity of the institution, the unpopularity of the former system - which on the other hand might be considered as helpful – high expectations of involved stakeholders and final users as well as the extensive amount of legacy data stemming from RAD that has been integrated into the new platform.

Nevertheless, the implementation has been successful due to an early and narrow involvement of both management stake holders and individual researchers right from the start of the project. From our perspective

¹ <https://www.elsevier.com/solutions/pure>

involving all concerned stakeholders – from university management, over researchers to administrative staff at department level – and sensitivity and adaptability to different academic cultures within the project is essential for the success of any institutional reporting tool. This assessment does not only hold for the phase of implementation of a CRIS but is at least as vital for the sustainable operation of the system, that in the end aims at preserving comprehensive information on research processes and achievements. Second the communication strategy – which guaranteed for a high degree of transparency throughout all phases of implementation – has been crucial for the success of the project. It has also been helpful throughout the process that the implementation team could rely on the experience and expertise of team members – from University of Vienna as well as on the side of the software partner – stemming from heterogeneous fields.

Responsibilities within u:cris & primary usage(-s) of the data

Due to reasons related to substantial content of the registered data two different administrative units are responsible for the RIM at University of Vienna. On one side 3,75 FTE at Vienna University Library are handling the central RIM coordination, incident management, the coordination of communication with the software vendor as well as editorial tasks related to Master Data, publications and academic activities. On the other hand side 1,25 FTE at the Research Service and Career Development are responsible for the administration of the Award Management Module within PURE. Finally the Vienna University Computer Center is managing and maintaining the synchronization of staff data from the Campus Management System as well as guaranteeing for the integration of u:cris into the informational environment at University of Vienna.

At large individual researchers themselves are held responsible for registering data in the RIMS and the accuracy and completeness of data. Due to the extensive number of entries and the complexity of the University of Vienna it is necessary to distribute the responsibility for the validation over the university's sub units rather than to implement a central quality management facility at the university level. Our experience has shown that allotting the responsibility for the validation to persons that are in proximity – as well as contentwise as institutionally – of actual research processes is beneficial for the overall quality of data registered in RIMS. In addition to researchers themselves guaranteeing for the entry and validation, specially trained administrative staff located at departments or faculties is in charge of administering data in u:cris. In total about 250 persons are in charge of the validation workflow for publications. About 150 colleagues act as contact points for initial registration of publications and academic activities. Finally approximately 70 persons are in charge of documenting the life cycle of research projects in u:cris.

Primarily the data stored in u:cris are used for reporting purposes and the public presentation of research outcomes – which is deemed a central instrument for increasing the visibility of research carried out at University of Vienna. For all formalized reporting needs University of Vienna runs a central data warehouse including a reporting system building up on IBM Cognos as frontend.

Presentation tasks for the larger part are taken over by the presentation tool built in into PURE and a plug-in tool allowing to display data from u:cris in websites of organizational units of University of Vienna. With u:cris it is possible for users to re-use data once stored in u:cris for multiple purposes and requirements - like generating individual CVs, representation and display of scientific output on diverse platforms. This led to a growing awareness of the importance to actively use u:cris as a resource in scientific processes and not purely as a monitoring tool deemed at satisfying the needs of research managers. This shift might be considered as one of the most important changes within the perception of Research Information Systems in the youngest time. These are no longer perceived as mere tools for the monitoring and surveillance of researchers but actively integrated in research strategies. This switch from an anonymized registry to a productive tool enhancing research processes has also been an important feedback we got from a study about increased visibility in the Social Sciences and the Humanities at University of Vienna (Bayer, Gorraiz, Gumpenberger, Mitterauer, Reding 2017)².

Added value of u:cris

In addition to the more advanced options for maintaining and presenting of academic profiles, u:cris is used since 2016/2017 as tool for the administrative accompaniment of applications for external funding and the documentation of research projects and related research outcomes. The introduction of such a tool for the administration and documentation of extramurally funded research projects needs to be considered as a major shift in the governance of University of Vienna as this allows the university's management to assess research processes on an institutional level in form of readily available bits of information that otherwise would remain buried and only available to research collectives directly involved in the disciplinary scientific practices (Gläser, Lange, Laudel, Schimank 2010). Nevertheless, we have to be alert to the fact that while information on

² Study available at Zenodo: 'Increased Visibility in the Social Sciences and the Humanities (SSH). Results of a survey at the University of Vienna. Executive Summary 2017 EN' <https://doi.org/10.5281/zenodo.401039>

research processes stored in RIMS are a valuable source for the comparative assessment of research entities, the actual practices underlying academic research remain blurred. Instead RIMS transforms information on research processes and outputs into bibliometric indicators which Björn Hammarfelt and Alexander Rushforth identify as decontextualized judgement devices that enable research assessment beyond the boundaries of academic disciplines (Hammarfelt, Rushforth 2017).

Since 2017 the complete lifecycle of third-party funded research projects are stored in u:cris, which means projects are documented and monitored throughout the three core phases of a project – application, grant and project – in u:cris. Here the two initial phases – application and grant – are administrated by research managers at each faculty and the personnel of the departments of Research Services and Career Development, and the facility for Finance and Controlling. Principal investigators have the opportunity to manage and enrich project records, enhancing public display of research projects the research portal of University of Vienna³.

Next endeavors and Open Access Monitoring

Even if we have highlighted some of the advantages of running a commercial vendor CRIS in the introduction, being relatively standardized and stable tools, also vendor CRIS are not exempt from ongoing adaptation and transformation due to technological and institutional development/change. Some of the next challenges are the development and implementation of an automated interface with SAP – for the moment data for migration into SAP is compiled manually – finalization of the implementation of the Award Management Module and the redesign and relaunch of the university's research portal.

Since 2017 the u:cris team has been involved in a project related to Open Access Monitoring in Austria – which is a sub-project of "Austrian Transition to Open Access AT20A" funded by the Federal Ministry of Science, Research and Economy⁴. One of the main challenges of this project will be the integration of multi-platform CRIS data from Austrian universities into one national monitoring and discovery tool for Open Access research in which CERIF-XML as a technical resource could take an eminently important position (cf. de Castro 2018a, 2018b). From our point of view, it will be institutional CRIS that in the future will play an eminently important role in elucidating the complex and multiple organization of research on a supra-institutional level (van Leeuwen, van Wijk, Wouters 2016) as these need to be considered as only resources able at underpinning the description of the complete research life cycle in any academic discipline with data. Whereas large scale bibliometric databases like Web of Science or Scopus have been extensively used for inter-organizational monitoring and benchmarking in the past, these have clearly been focused on research publications and skewed towards the natural and exact Sciences (van Leeuwen 2013). Hence, if we want to come to terms with a more diverse and rich description of academic processes – including financial data and considerations of societal impact – we will need to rely on data originally registered through institutional CRIS (e.g. van Leeuwen, van Wijk, Wouters 2016; van Leeuwen 2004) in the future.

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³ <https://ucris.univie.ac.at/portal/>

⁴ <http://at20a.at/>

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