

## Metrics and fair data for (early) career support

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### Introduction

Friedrich-Alexander Universität Erlangen-Nürnberg is a large research university in the German region of Franconia. Ranked the leading German university in innovation by the THE University Ranking<sup>1</sup> with over 40,000 students and employing more than 6,500 researchers and research supporting personnel in over 600 professorships, FAU has been using and improving their Converis<sup>2</sup> based Current Research Information System (FAU CRIS) since 2015<sup>3</sup>. FAU CRIS covers standard meta data models for research information, such as CERIF<sup>4</sup> and the German „Kerndatensatz Forschung“ (KDSF)<sup>5</sup>.

### Motivation & data overview

Like most CRIS systems, we collect a wide range of data. Automatically imported publications, research grants and other items are used for a variety of purposes. The university's leadership's initial reason was to have a valid and complete database for strategic decisions as well as official government and press inquiries. One important step in the development and acceptance of the CRIS system was the introduction of researcher oriented output options. A wordpress plugin<sup>6</sup> for displaying the data on chair and department websites was developed, which is now used by the majority of the university's websites. We also introduced a central research portal listing all the available research output in one central place<sup>7</sup>.

Keeping a RIS system current is a constant challenge for both the institutions and the users. Due to the constant output of new publications, new grants and other new data, the data entry is never "finished", but is instead an ongoing process. In order to keep the workload on the researchers as low as possible, we have developed automated processing features and import routines wherever possible<sup>8</sup>. This allows the users to focus on adding additional, non-importable information to their data. As an example, we import research grants from our legal and fiscal administrative department automatically. This contains data fields like dates, title, funding source and the applicant. Additional data provided by the users here could be abstracts, related publications, relevant research infrastructure, etc.

With the availability of this data for both the researchers and the administration, we were looking at new ways to re-use this data. One such way was introduced with application workflows in 2019.

### Implementation

Most of our current digital application processes within the FAU CRIS system are targeted at early career scientists. This is generally meant to be the stage in a career 6-10 years after gaining a PHD. FAU has several programmes supporting this career stage, including the Emerging

Talents Initiative ETI<sup>9</sup>, a programme allowing scientists to apply for starting funding which enables them to apply for larger third-party funded grants and FAU Nachwuchsgruppenleitung (Head of Junior Research Group) NGL<sup>10</sup>, which is a way to be able to supervise phd students without a full professorship or habilitation.

### Advantages

Before using the CRIS system for these applications, most of the application processes behind these were paper based. For the purpose of this paper, paper-based also refers to fillable PDF formats or any other "digital" format that is non-interactive, has no feedback loop and relies on email or printed out documents for a workflow. In general, they utilized non-restricted data fields, prompting the applicants to enter their information in any form they deemed fit.

Switching from a paper-based process to a digital application process has several advantages: Use of controlled lists for organisations, grants and other entities removes the need for free-form answers. This also makes the applications easier to read for reviewers and decision makers and removes uncertainties of what to enter in a given field. Controlling and evaluation is much easier this way, since no data needs to be manually entered or copied. Using a feedback option throughout the workflow process enables the researcher to see the current status of their applications at any time. Using an internal feedback loop enables the reviewers to ask for additional data or corrections from the applicants within the CRIS system, removing the need for separate correspondence outside the system.

What are the advantages of starting with early career support applications? There are two reasons why we started with early career support for application processes within CRIS. First, and most importantly, is opportunity. The programmes mentioned needed new workflows anyway and there was no good reason to simply reimplement the old paper-based workflows. Second is the amount of data processed and the number of people involved. Both of the two workflows use a clearly defined area of data (publications and grants) which are already present in the system through automated imports.

Having successfully introduced application processes for early career support, our next planned steps are large collaborative projects like EU funding and DFG funded Collaborative Research Centres. One of the major advantages here is the use of our available data on researcher cooperation. Processing past publications and research projects between the applicants at an early planning stage can yield valuable insight into the strengths and deficiencies of cooperation. Our goal is using these insights to improve the acceptance rate of project applications by providing guidelines for "strategic" cooperation papers, for example.

### Challenges

One of the major challenges, but at the same time a great opportunity, is the fact that implementing a new workflow within an existing system needs new stakeholders to be introduced to the system. In our case, these were the departments for research and early career support and our five faculties' deans' offices. Both were involved right from the start in an iterative process developing workflow and input templates as well as the actual data and attributes needed for the application process.

### Conclusion

So far, our implemented application processes have been an overall success. The new processes are more accessible, more transparent and faster overall. We also noticed a greater

data quality when comparing imported data to imported and user-improved data. We are looking forward to using the lessons learned in larger application and controlling processes.

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<sup>1</sup> <https://www.timeshighereducation.com/world-university-rankings/university-erlangen-nuremberg>

<sup>2</sup> <https://clarivate.com/academia-government/ko/scientific-and-academic-research/research-funding-analytics/converis/>

<sup>3</sup> Melsheimer, B., & Walther, M. (2016). Introducing CRIS at FAU. *Procedia Computer Science*, 106, 239-244. <https://dx.doi.org/10.1016/j.procs.2017.03.021>

<sup>4</sup> Asserson, A., Jeffery, K. G., & Lopatenko, A. (2002). CERIF: Past, Present and Future: An Overview. In „Gaining Insight from Research Information“: Proceedings of the 6th International Conference on Current Research Information Systems (S. 33–40). euroCRIS; Kassel University Press.

<sup>5</sup> <https://www.kerndatensatz-forschung.de/> (fetched on XX)

<sup>6</sup> <https://www.wp.rrze.fau.de/plugins/portale/fau-cris/>

<sup>7</sup> <https://cris.fau.de/>

<sup>8</sup> Walther, M., & Melsheimer, B. (2019). Automated author affiliation processing using Scopus data. *Procedia Computer Science*, 146, 53-59. <https://dx.doi.org/10.1016/j.procs.2019.01.079>

<sup>9</sup> <https://www.fau.eu/research/research-highlights/emerging-talents-initiative-faueti/>

<sup>10</sup> <https://www.fau.eu/research/research-careers/after-completing-your-doctoral-degree/fau-head-of-junior-research-group-faungl/>