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# Future and prospects of CRIS-informed funding support at TU Wien

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**Abstract**

TU Wien, Austria's leading technical university, relies heavily on third-party funding to maintain its research competitiveness. However, navigating the vast and competitive funding landscape can be daunting for researchers. The sheer number of options, limited information access, and fiercely competitive environment necessitate a more strategic approach. With success rates sometimes hovering around a few percent, excellence in non-scientific proposal parts is essential to be successful!
This challenging environment drives the evolution of the university's funding support unit, away from administrative tasks to success-oriented support. A continuous improvement process (CIP) ensures up-to-date access to information and also customized support activities to enhance success rates. The CIP is based on four corner stones: A one-stop shop for funding opportunities, monitoring of grant applications and outcomes, performance analysis and the development and implementation of tailored support actions. TU Wien's internal CRIS system is pivotal in this endeavor! The data-driven approach ensures that researchers have the best chance of securing funding and thus supports the advancement of scientific knowledge and innovation!



*Keywords:* funding support; continuous improvement process; user interaction

## 1. Introduction

TU Wien, Austria's largest university of technology, is firmly anchored in the country's innovation and science system. Guided by its mission statement "Technology for People," this anchoring rests on three pillars: research, academic affairs, and participation.
To maintain its research at an internationally competitive level and to stay fuTUre fit, TU Wien relies heavily on third-party funding. In 2022, researchers secured €105 million from funding agencies as well as the private and public sector. 68% of this budget originates from national funding sources. This funding fuels not only academic output but also fosters the careers of young scientists. In that year, 1.593 out of 4.377 researchers, from student assistants to full professors, were financed from various third-party sources [1].

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### 1.1. Challenges of Obtaining Funding

Researchers typically submit proposals to different funding bodies for specific programs or schemes. These proposals undergo rigorous evaluations based on the funder's mission and program goals. The programs cover a broad spectrum, ranging from basic research and applied research to product/system development, research infrastructure, doctoral school foundation, and career grants like researcher mobility just to name a few. With hundreds of funding opportunities available, finding the perfect fit for their research needs can be overwhelming for researchers. As of February 21st, 2024, the European Commission alone offers in its "funding & tenders" portal 461 open grants [2]. Considering national and other international opportunities, gaining a comprehensive overview becomes nearly impossible.

### 1.2. The Competitive Landscape

Securing funding for research projects is highly challenging due to the fiercely competitive nature of the landscape. In 2022, the Austrian Science Fund (FWF), the nation's leading public funding body for fundamental research, exemplifies this challenge. While it received a substantial application volume of €1.111 million across 2783 proposals, the FWF only funded 743 proposals, totaling €273 million [3].
In such an competitive environment simply proposing an interesting research topic and demonstrating the investigator's or team's qualifications is no longer sufficient. With success rates sometimes hovering around a few percent, excellence in non-scientific aspects such as project management, risk management, research ethics, gender issues, and dissemination or being able to clearly communicate innovation, originality or the unique selling proposition (USP) becomes crucial.

## 2. Transformation of Funding Support

This demanding and competitive environment is reshaping the requirements for TU Wien's funding support unit. In the past, it sufficed to guide researchers through the administrative and formal application process and provide information about funding opportunities and deadlines. In future, the job description of a funding support specialist will include additional tasks:

- *Analyse* submission behavior, national success rates and the institutional performance
- *Support* researchers in identifying suitable funding opportunities with the highest success rate
- *Implement* tailored support measures that enhance proposal success

In short, recent years have witnessed a shift from administrative to *success-oriented funding support* where knowledge about gaps in researcher awareness, application barriers and rejection reasons are important. This transformation also requires the implementation of a continuous improvement process (CIP). Plan-Do-Check-Act (PDCA) is one of the most popular tools in the continuous improvement model (Fig. 1) and also the preferred option here. TU Wien's funding support team has identified four cornerstones which are required to implement the CIP:

1. *One-stop shop* for funding opportunities and other important funding related information
2. Internal *monitoring* of applications and funder decisions
3. *Performance analysis*
4. Tailored *support actions*

This creates also new requirements for the TU Wien Information-Systems & Services (TISS) [4]. TISS is a comprehensive system which covers all aspects which are important for a university. Its capabilities range from personal administration, management of university teaching to research project management. TISS is therefore also the central information source about project applications and outcomes which are stored in the project database. In

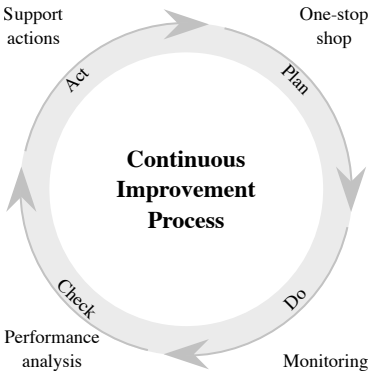


Fig. 1. Continuous improvement process (CIP) cycle utilizing the Plan-Do-Check-Act (PDCA) tools. The four cornerstones for this process are a one-stop shop for funding opportunities, monitoring via the TISS project database, performance analysis with an interactive dashboard and the development and implementation of tailored support actions.

addition, it covers many administrative aspects of the application and internal approval process. As a central and comprehensive information source TISS has also potential to ease the administrative burden for funding support specialists to free up resources for the new tasks.

## 3. The workflow and involved systems

The workflow and the interactions between researchers, funding support specialists and systems are depicted in Fig. 2. In this representation, the workflow may look like very technical and bureaucratic. Personal interactions and individual counseling are essential for success-oriented funding support but not in the scope of this paper.
The process starts with the funding support unit. Specialists screen national and international funding opportunities and add this information to the so-called one-stop shop. This one-stop shop not only includes information about relevant funding opportunities for TU Wien researchers but also cost calculation tools, building blocks for research proposals, best practices examples, FAQs, events, trainings, workshops and much more.

**1) One-stop shop for funding opportunities**: At the moment, the TUW-internal one-stop shop for funding opportunities (Fig. 2) is realized in TU coLAB (Confluence, Atlassian) [5]. Given the vast number of funding opportunities, identifying the right fit can be challenging. Hundreds of options are scattered across different funder websites and portals, with no standardization, making comparison difficult.
These problems are mitigated here. However, this system relies heavily on manual curation by funding support specialists. Each team member has to manually search funder websites, copy the necessary information and publish so-called one-pagers with the most essential information. This approach inherently limits the number of covered opportunities, hindering comprehensive support for researchers. Another challenge is the creativity and individuality of the different authors, although templates for one-pagers are provided. It is an ongoing tedious task of the coLAB editorial staff to ensure uniformity of the one-pagers and all other pages. In addition to information from funder websites, institutional information like internal deadlines, approval process or the contact details of the responsible funding support specialist are also provided.

Researchers use this opportunity to browse a database with standardized information and to identify the funding opportunity which fit their needs best. In an ideal situation they get in contact with the responsible funding support specialist, discuss their planned projects and choose relevant support actions to fill knowledge gaps or receive feedback. Before they are allowed to submit their proposal to a funding agency, they need internal approvals. These are regulated via the delegation of powers guideline at TU Wien and handled in the TISS project database. The ”resource approval” by the head of institute is always necessary. This confirms that the researchers have access to

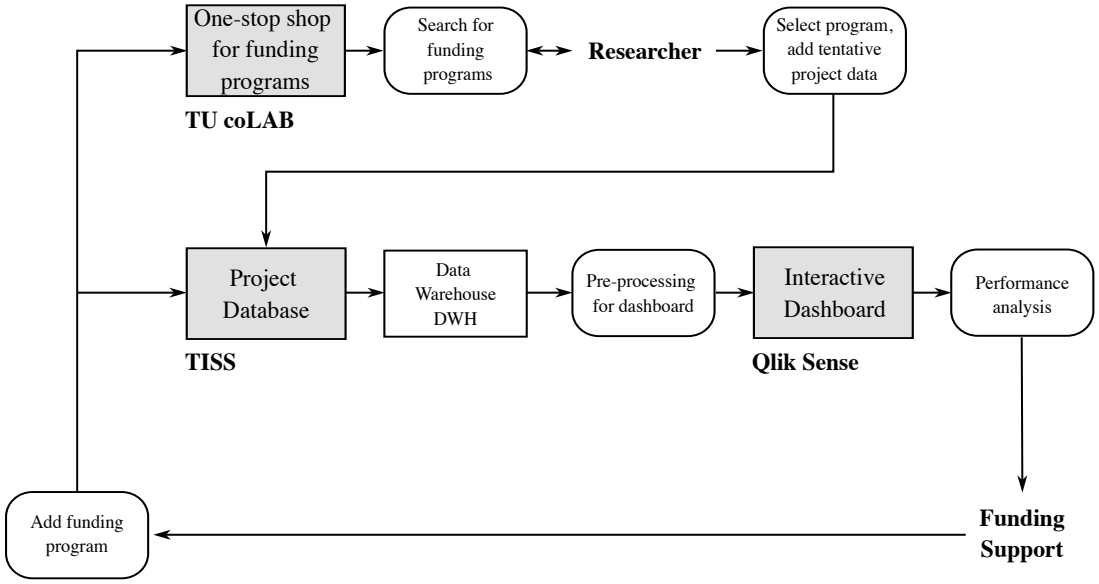


Fig. 2. Interactions between researchers, funding support specialists and used systems [TU coLAB. . . TU collaboration lab; Atlassian confluence; TISS. . . TU Wien Information-Systems & Services; Qlik Sense. . . interactive dashboard, QlikTech] from an end-user perspective.

necessary infrastructure at the institute if the proposal is accepted. Above a project volume of €400 thousand also the vice rector of research, innovation and international affairs has to be involved and to approve the application. The data provided here is used in the next step of the CIP process.

**2) Internal monitoring of applications**: All planned applications for third-party funding have to be entered in the TISS project database [4] (Fig. 2) by the researchers before submission. The funding programs and opportunities itself have to be entered manually by the funding support specialists and also have to be consistent with the offers in the one-stop shop. Since different people are involved in this task, the system is prone to errors and ambiguities.
Researchers have to pick the proper funding scheme from a drop-down menu and enter essential tentative project details like estimated project start, project volume, etc. As mentioned in the introduction to this section, the TISS platform also serves the internal approval process and, if successful, project implementation at the institution. The database captures relevant information for the funding support unit, including funding bodies, programs, researchers, institutes, project duration, budget, and post-evaluation outcomes.

The data generated in the previous workflow steps serves as a valuable resource for analyzing the submission behavior and TU Wien performance. One goal here is that every funding support specialist at TU Wien has to be able to inspect and analyze the data. To empower all team members, regardless of their backgrounds and know-how, a user-friendly tool to efficiently assess the performance of researchers, research groups, institutes, faculties, and the entire university across various funding programs is required.

**3) Performance analysis**: A Qlik Sense [8] dashboard (Fig. 2), powered by research data from the TISS project database via the data warehouse, addresses this need and thus helps to streamline funding support with data-driven insights. This interactive dashboard empowers users to perform complex data analysis without extensive training, unlike traditional methods like spreadsheets or Python coding.
Initial findings reveal as expected distinct funding trends across different departments. For example, institutes specializing in natural sciences exhibit different track records and utilize funding sources distinct from institutes focusing on mechanical or electrical engineering. This highlights the importance of tailored support strategies and

underscores the diverse funding landscape within TU Wien. The dashboard also allows to visualize the internal success rate $p(t)$ over time $t$ which is an important performance metric

$$p(t) = 100\,\frac{N_{\mathrm{a}}(t)}{N_{\mathrm{S}}(t)} \quad \text{with} \quad N_{\mathrm{S}}(t) = N_{\mathrm{a}}(t) + N_{\mathrm{r}}(t) \tag{1}$$

where $N_{\mathrm{a}}$(t) is the number of accepted proposals, $N_{\mathrm{r}}$(t) is the number of rejected proposals and $N_{\mathrm{S}}$ (t) the total number of submitted applications.

Most surprisingly, it was found that the TU Wien internal success rates in most cases were too high in comparison to the records of the respective funding support agents. The reason for this discrepancy is that a lot of researchers feel uncomfortable to have too many rejected applications in their profiles. Therefore, they tend to delete unsuccessful applications instead of changing the statuses to ”rejected”. In order to get better data quality, since beginning of 2024 researchers do not have the system privileges anymore to delete projects after they have gotten the approval in the TISS project database to submit the proposal. Only system administrators are now able to delete not submitted applications upon justified request.
To date it is therefore still necessary to rely on the personal notes of the funding support unit. This workflow step is therefore not fully implemented yet but the visualizations are ready!

Beyond success rates and preferred funders, the dashboard helps to identify underutilized funding opportunities. This data can shed light on potential gaps in researcher awareness, application barriers, and reasons for unsuccessful applications. Each of these insights informs specific actions to optimize funding support and empower researchers at TU Wien.

**4) Tailored support actions**: Based on the performance analysis and comparisons with national and international success rates, funding support specialists develop and implement targeted measures to continuously improve the success rate of TU Wien researchers. These measures can range from:

- Information events and workshops: These sessions educate researchers on specific funding programs, proposal writing techniques, and best practices for the different proposal parts. One example is the ”missing manual” series at TU Wien.
- Mentoring programs: Experienced researchers and funding support specialists provide personalized guidance and support to junior researchers throughout the proposal development and application process.
- In-depth proposal checks: Specialists offer comprehensive feedback on draft proposals, identifying areas for improvement and ensuring alignment with program requirements and evaluation process.
- Hearing trainings and simulations: Researchers practice their presentation skills and refine their responses to potential evaluation questions in simulated hearing environments with customized panels.

The effect of these measures is assessed by monitoring changes in success rates or in case of awareness campaigns if the number of applications increase over time. This data-driven approach ensures that TU Wien’s funding support services remain relevant, effective, and responsive to the evolving needs of its researchers. Additionally, CRIS-informed funding support specialists gain the satisfaction of knowing their efforts make a measurable difference.

## 4. Planned improvements

As described in Sec. 3 the workflow is prone to errors and suffers from poor data quality sometimes. For the future the aim is to minimize the need for manual data entrance and curation. Besides better data quality this will also relief involved parties from bureaucratic tasks and free up capacities for more fruitful activities. One solution will be provided by the RIS Synergy [6] consortium. It will allow to integrate information about funding programs but also data of accepted proposals and running projects directly from the respective funding agencies in the internal workflow (Fig. 3).

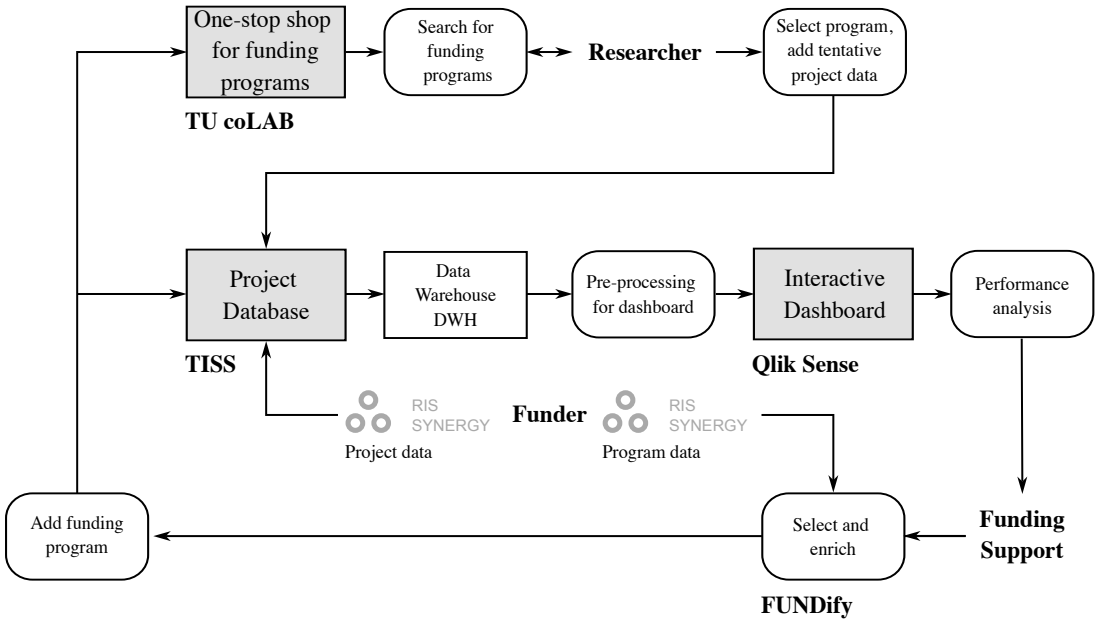


Fig. 3. Integration of program and project data from research funders in the internal workflow. RIS Synergy provides standardized interfaces to retrieve this data automatically. [TU coLAB. . . TU collaboration lab, Atlassian confluence; TISS. . . TU Wien Information-Systems & Services; Qlik Sense. . . interactive dashboard, QlikTech; FUNDify. . . RIS Synergy webtool to enrich funder program data with institutional information]

In the near future, **program information** from major Austrian national funding agencies like FWF (fundamental research) and FFG (applied research), and the local Viennese funder WWTF (fundamental research), will be provided via the program (data) information interface [7]. The RIS Synergy program information interface will provide comprehensive information on funding programs in an extended CERIF standard and therefore will also be compatible to other data sources like the API of the funding & tenders portal of the European Commission. Standardized program information will allow to automatically create uniform one-pagers with the most relevant information for different programs. The remaining task for funding support specialists will be to select funding programs of interest and to enrich the data with TU Wien-specific details via the RIS Synergy webtool FUNDify. Important internal details are deadlines for internal approvals, contact details of responsible specialists, recommendations, keywords, and best practices examples.
As mentioned before, funding opportunities have to manually added in the TISS project database by funding support specialists too. Again the RIS Synergy program information interface offers a solution to automatically retrieve this information directly from funders. This reduces errors, avoids typos, and eliminates ambiguity in the database, as both funder and call identifiers are used. This ultimately leads to cleaner data and less time spent on cleaning tasks before data analysis. Furthermore, the consistency between the data in the one-stop shop and the TISS project database is ensured at all times.

Another welcomed benefit of the RIS Synergy project is that also **project data** can be directly transferred from the funding agencies to the TISS project database. In the future, this will not only relieve the researchers from the burden to update the tentative project data which was entered during the application process but also provide the opportunity to monitor project progress in terms of finances and also personnel. Additional information like on collaboration partners will open up further opportunities for strategic planning.

In short, standardized and comprehensive project data which will be directly provided by funding agencies will also enhance data quality, reliability and timeliness.

## 5. Conclusion

By taking a proactive and data-driven approach to continuous improvement, TU Wien's funding support unit contributes that TU Wien stays fuTUre fit and ensures that its researchers have the best possible chance of securing the funding they need to pursue their groundbreaking work. This not only mitigates the risk and personal frustration of rejection, but also benefits the university and contributes to the advancement of scientific knowledge and the development of innovative solutions to global challenges.

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