

SCI Data Center

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1. Background

In the digital era, the School of Science at XJTLU faces multiple data- and process-related challenges in academic management. Data collection relies on a combination of online and offline tools without a unified integration mechanism, resulting in repeated data entry by teaching and research staff and difficulties in ensuring data consistency.

Data sources are fragmented, with heterogeneous formats and storage methods, making data integration complex and negatively affecting data accuracy and completeness. This leads to delays in data analysis and reporting, increased manual workload, and a higher risk of errors, ultimately reducing operational efficiency and decision-making quality.

Key management decisions lack real-time data support, preventing the establishment of rapid response mechanisms. In addition, the organization of academic activities—such as conference evaluation and feedback — remains cumbersome. These issues became particularly

evident during the preparation of the School's first annual research report in the 2023/24 academic year, highlighting an urgent need for a digital solution.

2. Solutions

Leveraging the University's no-code platform, the School established the School of Science Data Center, integrating multiple data sources to enable automated data collection, processing, and analysis. The core design and optimization focused on three key directions.

First, real-time data visualization dashboards were developed in conjunction with customized application forms to present key indicators dynamically, providing data-driven decision support for curriculum planning and faculty allocation.

Second, closed-loop workflows were designed to support core academic management processes, including funding applications, survey feedback, and PDR assessments. Taking conference funding management as an example, the workflow covers the entire lifecycle—from pre-conference application and approval, to post-conference expense reconciliation and tracking of research outputs—thereby enhancing process transparency and accountability.

Third, an instant scoring system was developed by integrating backend data tables, front-end scoring forms, and real-time ranking dashboards.

The system supports paperless evaluation by reviewers, automatic de-duplication of pending tasks, and reminders for unsubmitted scores, effectively addressing the needs of academic conference organization. Overall, the platform adopts a user-centered approach, optimizing core workflows through automation.

3. Outcomes and Benefits

Data management efficiency has improved significantly. Automated data collection and processing have reduced repetitive manual work, while real-time visualization provides a solid evidence base for data-driven decision-making. Data accuracy and usability have been substantially enhanced (Figure 1).

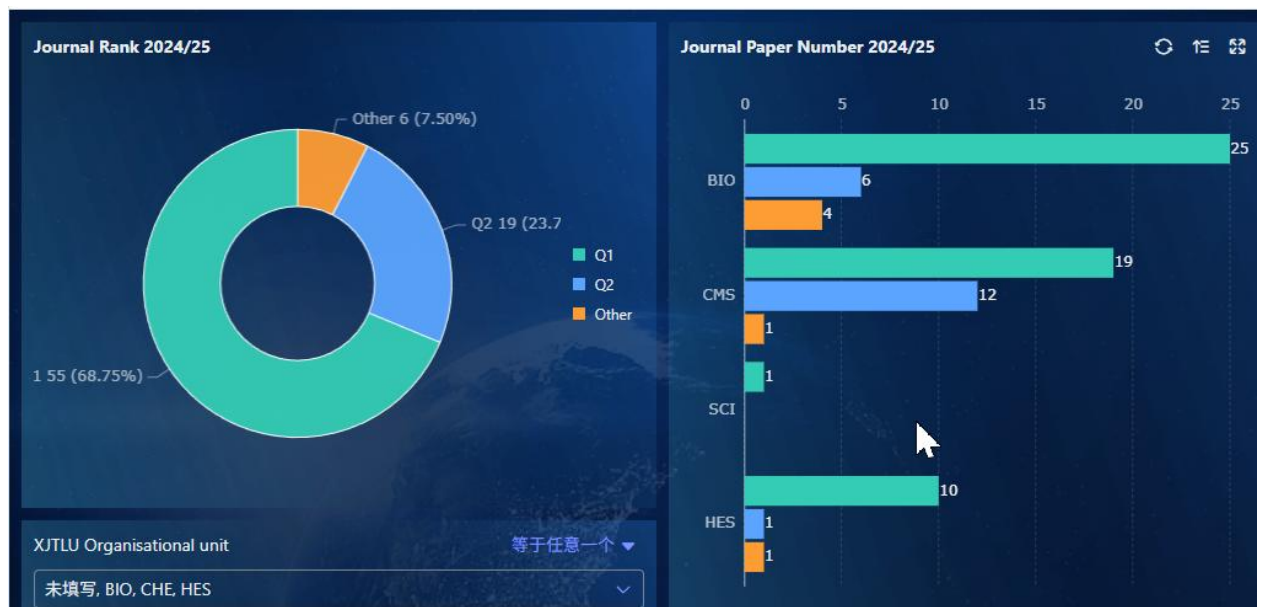


Figure 1. Research Output Statistics Dashboard by Department (figures shown are fictional and for demonstration purposes only)

Research management has been further optimized. Conference funding and publication funding application forms have been successfully embedded into daily operations. Closed-loop workflows enhance transparency and accountability, effectively incentivizing research output and enabling more scientific resource allocation and project planning (Figure 2).



Figure 2. Funding Statistics Dashboard (figures shown are fictional and for demonstration purposes only)

The efficiency of academic event organization has been greatly improved. The instant scoring system was successfully applied in the 2024/25 School of Science Postgraduate Research Conference, the First Tri-University Joint Symposium, and the 2025/26 SURF Poster Exhibition. The system simplified reviewers' workflows, automatically generated

rankings and statistics, eliminated manual calculation errors, and ensured the smooth execution of academic events (Figure 3).

Oral - BIO			
ID	Name	Score	
1	24	41	
2	21	40	
3	18	40	
4	22	40	

Oral - CMS			
ID	Name	Score	
1		43	
2		40	
3		33	

Oral - HES			
ID	Name	Score	
1	19	44	
2	20	39	
3	23	38	
4	23	37	

Poster - BIO			
ID	Name	Score	
1		43	
2		42	
3		41	
4		41	

Poster - CMS			
ID	Name	Score	
1		42	
2		39	
3		38	
4		38	

Poster - HES			
ID	Name	Score	
1	19	44	
2	23	43	
3	23	40	
4	23	39	

Figure 3. Visualization Dashboard of the Instant Scoring System

The value of data storage and utilization has been fully unlocked, providing efficient support for annual research reporting and communication activities. For example, the system directly supplied content for the production of the “2024 School of Science Annual Story”, supporting the School in summarizing achievements and planning future development (Figure 4).

Team innovation and collaboration capabilities have been strengthened. Through training and hands-on practice on the no-code platform, team members acquired new digital skills, laying a solid foundation for sustained digital transformation. This case was awarded the “Best

Platform Application Award” in the Xi’an Jiaotong-Liverpool University Digital Platform Empowerment Competition.



Figure 4. The School of Science Data Center Receiving the “Best Platform Application Award” in the XJTLU Digital Platform Empowerment Competition

4. Replicability and Promotion Value

This case is applicable to colleges and schools across higher education institutions, as well as similar educational and academic organizations. Its core promotion value is reflected in three aspects.

From a technical perspective, the solution is developed on a no-code platform, requiring no complex programming skills. It features a short development cycle and low implementation cost, enabling rapid replication by other units.

From a scenario perspective, it covers key academic management use cases, including data integration, process automation, and academic event organization. Functions such as visualization dashboards, closed-loop workflows, and instant scoring systems can be readily transferred to teaching administration, research funding approval, and academic activity management across different disciplines.

From an experiential perspective, the case presents a complete implementation pathway—from problem diagnosis and platform selection to functional development and iterative optimization—providing a practical reference for other organizations pursuing digital transformation, particularly those facing challenges related to fragmented data and inefficient processes.

5. Next Steps

In the short term, new applications will continue to be developed to respond to the School's growing digital needs. In the medium term, plans include: (1) integrating artificial intelligence technologies to further

enhance platform intelligence and analytical depth; (2) internal expansion to support PI-centered research group management; and (3) external expansion to develop academic management platforms for external collaborative projects.

In the long term, the goal is to transform data users into data contributors, enabling a fundamental shift from data as a cost to data as a value creator, and to continuously deepen the impact of digital transformation.