Development of a Horizontal Research Project Data Platform and Practice of Project Visual Management

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Supported by LM

1. Background

Previously, the university's horizontal research projects primarily relied on Excel for the aggregation and statistical analysis of multi-source data, which led to issues such as data fragmentation, delayed information updates, and the lack of a unified view. Management departments found it difficult to conduct effective cross-system data verification and could not gain real-time, comprehensive oversight of project execution status, fund utilization, and contract fulfillment. This resulted in slow response times for daily management, heavily reliant on manual verification and passive reporting. Consequently, decision-making support was limited to static, outdated summary reports, preventing dynamic observation of university-wide project situations and hindering the speed of management response and risk intervention.

2. Solutions

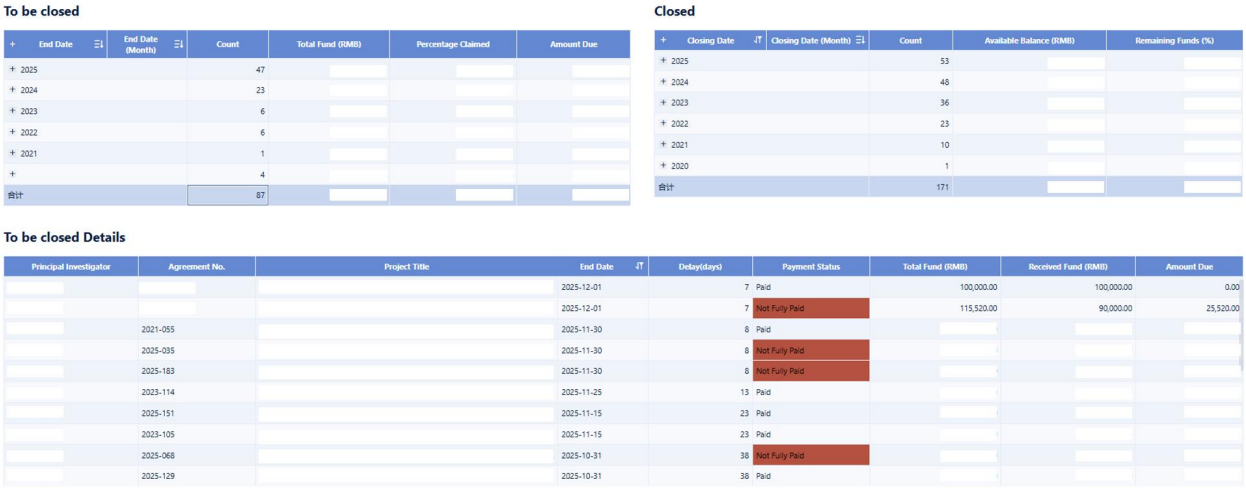
To enhance management efficiency, the Office of Research Productivity and Innovation, leveraging the newly built data platform, achieved centralized access and collaborative application of multi-source project data. A functional system oriented towards management needs was established, with specific applications including:

1. **Data Integration and Unified View Construction:** Key data fields from various project and funding perspectives were aligned and cleansed, forming an accurate, stable, and unified foundation for project statistical data.
2. **Flexible Screening and Drill-Down Queries:** The platform supports screening data using complex multi-dimensional criteria such as year, department, project lead, and funding range. This allows for the rapid generation of customized statistical reports and enables quick drill-down from the statistical level to specific project details, flexibly addressing various statistical and query needs to serve diverse management decisions.
3. **Holistic Contract View and Historical Trend Analysis:** Managers can use the dashboard to systematically analyze collaboration situations and growth in volume from multiple angles, including collaboration type, departmental distribution, annual trends, and

project scale, helping to identify the university's key collaboration directions and potential fields.

Figure 1. Contract Overview and Historical Trend Analysis Dashboard

4. Project Expiry Alerts and Dynamic Funding Tracking: The platform aggregates and centrally displays the number of projects pending closure and overall funding status in real-time. It transforms closure dates, funding plans, and payment statuses into visual risk indicators. Thresholds are set for risks such as "should be closed but not" and "funds due but not received," with automatic flagging to help managers promptly identify anomalies and follow up on relevant projects in a targeted manner.



To be closed

End Date	End Date (Month)	Count	Total Fund (RMB)	Percentage Claimed	Amount Due
2025		47			
2024		23			
2023		6			
2022		6			
2021		1			
		4			
合计		87			

Closed

Closing Date	Closing Date (Month)	Count	Available Balance (RMB)	Remaining Funds (%)
2025		53		
2024		48		
2023		36		
2022		23		
2021		10		
2020		1		
合计		171		

To be closed Details

Principal Investigator	Agreement No.	Project Title	End Date	Delay(days)	Payment Status	Total Fund (RMB)	Received Fund (RMB)	Amount Due
			2025-12-01	7	Paid	100,000.00	100,000.00	0.00
			2025-12-01	7	Not Fully Paid	115,520.00	90,000.00	25,520.00
	2021-055		2025-11-30	8	Paid			
	2025-035		2025-11-30	8	Not Fully Paid			
	2025-183		2025-11-30	8	Not Fully Paid			
	2023-114		2025-11-25	13	Paid			
	2025-151		2025-11-15	23	Paid			
	2023-105		2025-11-15	23	Paid			
	2025-068		2025-10-31	38	Not Fully Paid			
	2025-129		2025-10-31	38	Paid			

Figure 2. Project Expiration Alert and Project Fund Tracking

3. Outcomes and Benefits

The development and application of the aforementioned functions have yielded positive results in the following areas:

1. Leap in Data Service Responsiveness: The efficiency of managers' daily statistics and report compilation has significantly improved. Faced with various internal and external statistical and assessment requirements, managers can quickly and accurately extract and provide the necessary data using the multi-dimensional filtering functions.

2. Enhanced Management Perspective and Capabilities: On one hand, the multi-dimensional dashboards allow for a comprehensive grasp of all aspects of the university's horizontal research. On the other hand, the funding and project expiry reminder features enable timely tracking and appropriate intervention regarding the execution risks

and progress of specific projects, significantly improving project management standardization.

3. More Scientific Decision Support: Multi-angle analysis can be conducted based on integrated, coherent, and dynamic data, accurately reflecting the true trends and characteristics of horizontal research development, thereby providing solid data support for policy formulation.

4. Replicability and Promotion Value

The successful implementation and effectiveness of this case primarily rely on the following two aspects:

1. Foundational Information Technology Conditions: Having a data platform as an enabling tool makes it easier to achieve rapid results in business areas with existing IT infrastructure, where key operational data is relatively digitized and management processes are standardized.

2. Clearly Defined Application Scenarios: Starting with core business management needs, it is beneficial to first align on key data definitions and establish streamlined data exchange rules. This facilitates the rapid development of visual applications and further clarifies improvement goals.

The main challenge in realizing such applications lies in the standardized cleansing and ongoing maintenance of cross-business, multi-source heterogeneous data. This requires establishing robust business collaboration mechanisms, data maintenance mechanisms, and technical support systems, as well as carefully assessing the business rationale and statistical objectivity of the constructed indicators.

The core value of this case lies in achieving the effect of "visibility of status, predictability of risks, and analyzability of trends" through the integration and utilization of dispersed data. This model of leveraging data to optimize management holds strong reference value for other scenarios requiring comprehensive judgment and decision support based on multi-source, dynamic data. Building upon its scalability, it can gradually establish a data foundation for scientific decision-making, providing a reference pathway for universities to modernize their governance capabilities.