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Digital Profiling of University Faculty: Construction, Application and Practice in Finance-Oriented Higher Education Institutions

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Abstract—Against the backdrop of the deepening digital transformation of education, faculty digital profiling has emerged as a core mechanism supporting the intelligent and precision-driven development of university teaching staff management. Taking finance-oriented higher education institutions as the primary research context, this paper addresses the new demands of educational development in the digital-intelligence era and the practical pain points of university faculty management. It systematically examines the conceptual logic, implementation pathways, and safeguard mechanisms underpinning the construction of faculty digital profiles. By analyzing four principal challenges—data integration, indicator alignment, privacy protection, and scenario-based application—the paper proposes a set of targeted solutions: establishing cross-departmental data collaboration mechanisms, building a tiered and categorized indicator framework, deepening scenario-based application, and reinforcing the privacy and security baseline. Four corresponding institutional safeguards—organizational, progress management, financial, and evaluative—are also delineated. The findings demonstrate that a scientifically constructed faculty digital profile can simultaneously empower individual teacher development and align with institutional strategic planning, thereby providing a robust human resource foundation for building world-class universities with Chinese characteristics and carrying significant practical value for advancing the high-quality development of higher education.

Index Terms—University faculty; Digital profiling; Teaching staff development; Digital empowerment

I. RESEARCH BACKGROUND AND SIGNIFICANCE

A. Research Background

Digital technologies centered on big data and artificial intelligence are profoundly reshaping the developmental landscape of higher education. Educational digitalization has been explicitly identified as a strategic imperative in the *Education Powerhouse Construction Planning Outline (2024–2035)* [1]. The Third Plenary Session of the 20th Central Committee of the Communist Party of China further emphasized deepening comprehensive educational reform and advancing the digital transformation of education, presenting new challenges and imperatives for university faculty development. As the primary institutions cultivating high-caliber financial and economic

professionals, finance-oriented universities face multiple overlapping demands: optimizing the faculty structure, fostering innovation in teaching and research, and upgrading social services. Conventional faculty management models that rely on experience-based judgment have become increasingly inadequate to meet the demands of the digital-intelligence era [2].

A pervasive “data fragmentation” problem currently plagues university faculty management: data on personnel, teaching, and research are stored in isolation across multiple departments, with system interoperability barriers remaining a persistent challenge. Comprehensive faculty evaluations tend to apply a “one-size-fits-all” approach, failing to accommodate the individualized needs of teachers across different disciplines and career stages. Management decision-making remains overly experience-driven, lacking precise data support. Individual teachers’ professional development is largely unguided, making it difficult for them to identify their own weaknesses and growth areas. In this context, constructing a faculty digital profile that is “data-accurate, application-intelligent, faculty-endorsed, and management-efficient”—one that generates profiles dynamically with intelligent feedback—has become a critical lever for university digital transformation and an imperative pathway for high-quality development of faculty teams [3].

B. Research Significance

Grounded in the disciplinary characteristics of finance-oriented universities, this paper systematically constructs a theoretical framework and implementation pathway for faculty digital profiling, thereby enriching the body of scholarship at the intersection of educational digitalization and faculty development. By exploring models of deep integration between data governance and faculty management, it provides a theoretically transferable reference for digital profile construction in universities and broadens the research horizon of educational digital transformation.

At the institutional level, faculty digital profiles can provide precise data support for academic program planning, talent recruitment, and resource allocation, driving a transition in management decision-making from “experience-driven” to “data-driven” approaches and advancing the intelligent, precision-oriented transformation of faculty development. At the faculty level, digital profiles can visually represent multi-dimensional performance across teaching, research, and service, accurately identify developmental gaps, and deliver personalized improvement recommendations that support professional growth [4]. At the broader educational level, this work responds to the strategic imperatives of educational digitalization by accelerating the construction of a digital foundation, advancing data-intelligence-enabled improvements in faculty management quality and efficiency, deepening reforms in talent cultivation and recruitment systems, and ultimately promoting the high-quality development of human resources and enhancing the overall governance capacity of higher education.

II. CORE PAIN POINTS AND PRACTICAL CHALLENGES IN FACULTY DIGITAL PROFILE DEVELOPMENT

A. Cross-Departmental Coordination Challenges in Data Integration and Quality Control

Faculty-related data in universities are dispersed across multiple departments—including human resources, academic affairs, research management, and international cooperation. These systems vary in construction standards and data formats, giving rise to “data silos.” For instance, teaching evaluation data from academic management systems and research output data from scientific research systems are difficult to interconnect, resulting in incomplete profile data. Additional data quality concerns include subjective bias (e.g., student evaluations influenced by emotional factors) and update delays (e.g., research outputs not entered in a timely manner). Furthermore, the boundaries of rights and responsibilities for inter-departmental data sharing remain unclear, manifesting in institutional reluctance or hesitancy to share data. The absence of a unified data governance mechanism leads to data fragmentation that seriously undermines the accuracy and authenticity of digital profiles.

B. Alignment Challenges Between Profiling Indicators and Management Needs

Constructing an indicator framework that is aligned with both institutional strategic priorities and the realities of faculty careers represents the central difficulty in digital profiling. On one hand, faculty competencies span multiple dimensions—professional ethics, teaching ability, research capacity, and social service—and determining scientifically sound weightings for each dimension, while guarding against the skewed bias of overvaluing research at the expense of teaching or privileging outputs over mentorship, is an urgent unresolved issue. On the other hand, finance-oriented universities encompass multiple disciplines including economics, management, and law, and the core needs of faculty at different career stages—newly

appointed teachers, mid-career faculty, and senior professors—differ substantially. An indicator framework lacking sufficient specificity risks becoming divorced from reality, producing profiles that are visually compelling but practically unhelpful, unable to support precise decision-making [5].

C. The Balancing Dilemma Between Privacy and Security and Faculty Acceptance

Faculty digital profiles involve large volumes of sensitive data, including personal background information, teaching evaluations, and research outputs, creating significant privacy protection pressures. Some faculty members harbor resistance toward data collection and application, fearing personal information disclosure or surveillance through “data monitoring.” Establishing transparent data collection rules and feedback mechanisms—striking a balance between data utilization and privacy protection that simultaneously satisfies compliance requirements, implements data encryption, tiered authorization, and anonymization mechanisms, neutralizes faculty resistance, and enhances faculty acceptance and engagement—constitutes a critical challenge throughout the digital profile development process [6].

D. Difficulties in System Deployment and Integration with Management Scenarios

The ultimate value of faculty digital profiles must be realized through practical application; however, in practice, multiple barriers and challenges exist in the translation from “data profiling” to “management effectiveness.” First, how to transform complex data into accessible and intuitive visualization interfaces, avoiding overly technical data presentation that renders complex charts and indicators difficult for administrators to interpret quickly. Second, how to ensure dynamic data updating, preventing the profile from falling out of step with faculty members’ actual development due to delayed updates and thereby diminishing the timeliness of management decisions. Third, the disconnection between profile outcomes and management processes—profiles not being effectively embedded in workflows such as professional title evaluation, performance assessment, and training and development—renders them unable to fulfill their intended empowerment function [7].

III. CONSTRUCTION LOGIC AND IMPLEMENTATION STRATEGIES FOR FACULTY DIGITAL PROFILES

A. Establishing Data Collaboration Mechanisms to Address Data Integration Challenges

1) *Strengthening Top-Level Design and Implementing Collaborative Management:* A coordinated working system should be established under the unified leadership of the Party Committee, with joint administrative and party oversight, the human resources department serving as the lead coordinator, and all relevant functional departments and academic units sharing defined responsibilities in a vertically linked and horizontally integrated structure. A *Faculty Digital Profile Data Sharing Management Policy* should be formulated to

clearly define the rights and responsibilities of each department regarding data collection, sharing, and updating. Regular collaborative advancement meetings should be convened to address system integration and data standardization issues through dynamic consultation, thereby breaking down both institutional and technical barriers and fostering a productive and mutually reinforcing working dynamic.

2) *Building a Data Middle Platform to Strengthen Technical Support*: Leveraging the existing smart campus infrastructure, a “Faculty Data Middle Platform” should be constructed. ETL (Extract, Transform, Load) technology should be employed to integrate core business systems covering human resources, academic affairs, and research management, enabling real-time data extraction and cleansing and the establishment of unified data standards—for example, standardizing teaching evaluation data and establishing dynamic update interfaces for research outputs—ensuring a data accuracy rate of 95% or above. Through hierarchical structures such as ODS (Operational Data Store) and EDW (Enterprise Data Warehouse), normalized data management and efficient utilization can be achieved.

3) *Opening Feedback Channels to Form a Data Closed Loop*: Faculty members should be granted access to their individual data backend, with an error-reporting portal established to allow them to submit review requests for their personal information and research output records; the relevant departments should be required to process these requests within a defined timeframe. A closed-loop process encompassing “data collection—verification—feedback—updating” should be established. Through cross-departmental data reconciliation and regular data quality audits, data quality can be continuously improved.

B. Constructing a Tiered and Categorized Indicator Framework to Enhance Profile Alignment

1) *Developing a Tiered and Categorized Indicator Framework*: Drawing on institutional realities, a tiered and categorized indicator framework that balances scientific rigor, systemic integrity, and operational feasibility should be constructed—one that reflects faculty multi-dimensional competencies while aligning with the institution’s talent development strategy. The framework should achieve multi-dimensional integration, covering six major dimensions: professional ethics and conduct, teaching ability, research capacity, career development, international engagement, and service competency. Based on faculty career stage, the weighting of indicators within each dimension should be refined, with discipline-specific differentiation applied to enable dynamic calibration and real-time updating of profiles. Implementation should emphasize data collaboration, encrypted privacy protection, and enhanced faculty participation.

2) *Strengthening Dynamic Calibration and Application Value of the Indicator Framework*: Drawing on tiered evaluation data, dynamic faculty profiles should be generated: at the individual level, they provide identification of developmental

gaps and intelligent recommendations for improvement pathways; at the management level, they deliver visualization dashboards of faculty team structure to support resource allocation and enable multi-dimensional competitiveness benchmarking. This achieves fully data-driven decision-making across the full chain from individual development to strategic institutional planning. A dual-track feedback mechanism—“top-down and bottom-up”—should be established: top-down adjustment of indicator weightings in alignment with institutional strategic priorities; bottom-up collection of feedback through faculty forums and student and faculty satisfaction surveys. Annual iterative optimization of the indicator framework, informed by self-assessment and third-party evaluation results, should ensure that profiles remain in resonance with faculty growth and institutional development [8].

C. Deepening Scenario-Based Application of Profile Outcomes to Enhance Management Decision Effectiveness

1) *Embedding Digital Profiles into Full-Cycle Faculty Management Processes*: A *Digital Profile Individual Report* should be generated, featuring a “Growth Radar Chart” with personalized labels such as “Teaching-Strength Type,” “Research-Potential Type,” and “Social Service-Excellence Type,” intuitively displaying each teacher’s strengths and areas for improvement across teaching, research, and social service dimensions. A *Personalized Development Recommendation Report* should be generated and customized resources pushed accordingly—for example, teaching improvement programs recommended for faculty with weaker teaching performance, and research project resources matched for faculty with high research potential. Profile outcomes should be linked to annual faculty appraisals, professional title evaluations, and performance assessments, making evaluations more objective and fair while mitigating the bias of overreliance on papers or awards.

2) *Building an Intelligent Decision Support System*: A “Leadership Command Center” visualization interface should be developed to present in real time key data including faculty team structure, disciplinary talent gaps, and resource allocation distribution, enabling administrators to quickly grasp faculty dynamics. *Faculty Development White Papers* should be regularly produced to provide data-informed support and decision-making references for disciplinary planning, talent recruitment, and resource allocation. A “red-yellow-blue” early warning mechanism should be established to issue timely alerts for situations such as declining teaching quality or anomalous research output, with “risk indicators” and automatic intervention protocols configured to prevent management risks.

3) *Expanding Multi-Dimensional Application Scenarios*: At the institutional leadership level, digital profiles enable precise understanding of the current state, strengths, and weaknesses of the faculty, supporting the scientific formulation and optimization of faculty development policies, precise resource deployment, and enhanced teaching and research efficiency. At the departmental level, digital profiles improve operational effectiveness: the academic management department can

| Establish the logical framework | |
|--|---|
| Layered/Classified | Divide/Set up |
| The Stages of Teachers' Professional Development | Newly-recruited teachers (<3years) 、 Core teachers (3-10years) 、 Senior professors (>10years) |
| Teacher Competency Modules | Six Core Dimensions: Teacher Morality and Ethics, Teaching Competence, Research Capability, Career Development, International Exchange, Service Capacity |
| Construction Steps | |
| Phase Division | Key Content |
| Standard Establishment Phase | Divide teachers' career phases and define the basic dimensions |
| Indicator Design Phase | Focus of Core Indicators for Teachers at Different Levels Newly-recruited teachers: Improvement of teaching competence Core teachers: Transformation of research achievements Senior professors: Academic leadership of disciplines |
| Discipline Adaptation Phase | Economics/Management: Increase the development of fintech teaching cases and the media reprint volume of interpretations of major financial and economic policies. Law/Sociology: Strengthen the adoption rate of policy recommendations on financial regulation and the participation degree in the formulation of industry standards. Characteristic Indicators for Basic Disciplines: Improve the high citation frequency of basic research papers and the weight of interdisciplinary projects. |
| Dynamic Calibration Phase | Dual-track Feedback: Adjust according to the school's strategy in a top-down approach, and optimize through teachers' forums in a bottom-up approach. Annual Evaluation: Iterate indicators by combining the results of self-evaluation and third-party evaluation. |
| Safeguard Mechanism | |
| Mechanism | Measures |
| Data Collaboration | Three-level Data Linkage among Individual Teachers, Colleges and Relevant Departments |
| Privacy Protection | Data Encryption + Hierarchical Authorization + Anonymization Processing |
| Teacher Participation | Collect feedback through questionnaires and forums |
| Application Scenarios | |
| Subject | Value Embodiment |
| Individual Teachers | Generate a career planning radar chart to accurately identify development shortcomings |
| Relevant Management | Analyze the structure of individuals and groups to optimize talent introduction and resource allocation |
| Discipline Construction and Faculty Team Development | Identify the advantageous items of disciplinary competitiveness and clarify the development direction of faculty team construction through indicator comparison |

Fig. 1. Indicator Framework Construction Scheme

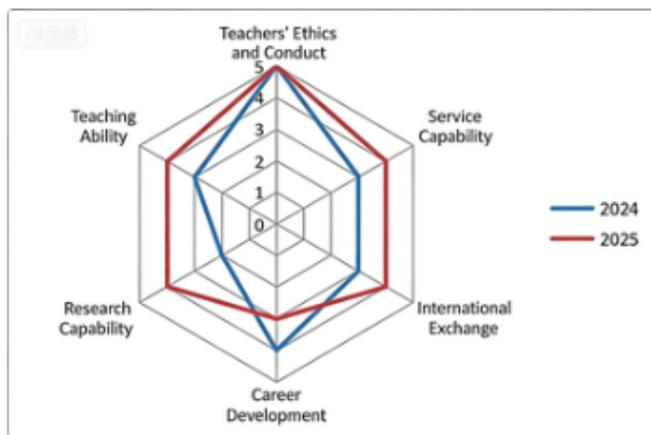


Fig. 2. Growth Radar Chart (Illustrative Example)

monitor teaching quality in real time and identify issues for timely remediation; the research management department can analyze faculty research potential and provide targeted support for high-potential individuals; the international cooperation department can match faculty with international exchange programs based on their international competency profiles. At the individual faculty level, digital profiles enable teachers to clearly understand their own current status and areas for improvement across teaching, research, and mentorship, receive targeted development recommendations, optimize teaching approaches, strengthen research capacity, and support holistic professional growth [9].

D. Reinforcing the Privacy and Security Baseline to Enhance Faculty Acceptance and Engagement

1) *Establishing a “Transparent and Tiered” Data Management Mechanism: A Faculty Digital Profile Data Usage Guide* should be formulated to clearly specify the scope of data collection, application scenarios, and modification and deletion rights, and publicly disclosed to all faculty members to guarantee their right to be informed. A tiered data management system should be implemented with clearly regulated permission boundaries to ensure privacy security and enable controlled sharing of sensitive data alongside tiered decision-making support.

2) *Conducting “Empowerment-Oriented” Outreach and Communication:* Thematic workshops on “Digital Profiling for Faculty Development” should be organized, employing system demonstrations, policy interpretation, and case sharing to articulate the positive value of digital profiles for individual career growth, reinforcing the concept of “profiling as a service.” Regular collection of faculty feedback should inform continuous optimization of system functionality and user experience, enabling faculty to tangibly experience the convenience and developmental benefits that digital profiles deliver—dissolving resistance and enhancing participation and acceptance [10].

E. Constructing a Three-Dimensional Evaluation Framework to Ensure Continuous Profile Improvement

A three-dimensional evaluation framework covering “data quality—application effectiveness—faculty feedback” should be established. Data quality focuses on data accuracy rates, timeliness of updates, and error-correction response efficiency. Application effectiveness assesses the depth of profile integration into management workflows and the precision of resource delivery recommendations. Faculty feedback collects satisfaction levels and improvement suggestions through questionnaire surveys. An “annual self-evaluation combined with third-party assessment” model should be adopted, producing an annual *Faculty Digital Profile Implementation Effectiveness Report* that prioritizes evaluation of indicator utilization rates and decision-making support capacity, with emphasis on applying assessment results to drive a “evaluate—feedback—iterate” closed loop that ensures faculty profiles continuously empower both faculty development and institutional management.

IV. CONCLUSION

The faculty digital profile represents an important vehicle for the deep integration of educational digital transformation and faculty team development—a critical lever for advancing the high-quality development of higher education in the digital-intelligence era. Its core value lies not only in breaking the dependence on experience in traditional faculty management through systematic data governance, but also in enabling precision-driven empowerment in faculty management and individualized support for faculty development, opening entirely new pathways for universities to overcome management challenges and invigorate their teams.

Grounded in the realities of university faculty management, this paper has systematically analyzed four core challenges in digital profile construction—data integration and collaboration, indicator alignment and optimization, privacy and security balance, and depth of scenario-based integration—and proposed a four-in-one implementation strategy: a data collaboration mechanism, tiered and categorized indicator framework, scenario-based application deployment, and privacy security baseline. A “construction—application—evaluation—iteration” operational safeguard mechanism has also been articulated. Evidence indicates that a scientifically sound faculty digital profile can effectively break down data silos across human resources, academic affairs, and research departments, resolving the “data fragmentation” dilemma; through differentiated indicator design, it avoids the pitfalls of “one-size-fits-all” evaluation and achieves precise characterization of faculty across different disciplines and career stages; through transparent data management and privacy protection mechanisms, it dissolves faculty resistance and enhances profile acceptance; and by embedding the profile into full-cycle faculty management processes, it transforms data value into management effectiveness and developmental momentum, genuinely achieving bidirectional empowerment of institutional strategic planning and individual teacher development, and advanc-

Fig. 3. Tiered Data Management Framework

ing the transformation of higher education governance from “experience-driven” to “data-driven.”

Looking ahead, as artificial intelligence and big data technologies continue to evolve, faculty digital profile development in universities will require continuous deepening and upgrading. On one hand, dynamic updating and intelligent adaptive capabilities must be strengthened—through real-time data collection technology and optimized intelligent algorithms, profiles should remain in resonance with faculty growth and institutional development. On the other hand, the depth and breadth of scenario-based integration must be expanded, embedding profile outcomes more closely into core processes such as personalized teaching reform, collaborative research innovation, international exchange coordination, and professional title evaluation reform, so that data-driven empowerment permeates every stage of a faculty member’s career. Simultaneously, the privacy and security baseline must be continuously reinforced: as technology advances, mechanisms for data encryption and tiered authorization should be refined to achieve a dynamic balance between data utilization and privacy protection.

Standing at the strategic height of building an education powerhouse, the continued improvement and in-depth application of university faculty digital profiles will undoubtedly provide a solid human resource foundation for building world-class universities with Chinese characteristics, inject sustained momentum into cultivating a high-quality, professionally competent faculty, and enhancing the overall governance capacity of higher education—ultimately playing an increasingly far-reaching role in advancing the connotation-based development of higher education and serving national strategic imperatives.

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