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Sustainable Financial Models for Higher Education in India: A Strategic Management Approach

Dr. Vikas Singh[1*], Dr. Aliya Sultana[2], Dr. Alok Kumar[3], Dr. Vinayak Vishwakarma[4], Gauri Singh Bhadauria[5], Advocate Varun Goel[6]

[1*]Faculty Member, Department of Humanities & Social Sciences, Motilal Nehru National Institute of Technology, Allahabad, Orcid Id: https://orcid.org/0009-0005-6572-1778

[2]Associate Professor, Department of Management Studies, RGM College of Engineering and Technology, Nandyal, Andhra Pradesh, aliya.sultana74@gmail.com

[3]Assistant Professor, Rajiv Gandhi South Campus (RGSC), Banaras Hindu University dr.alokkumarbhu@gmail.com

[4]Assistant Professor, Jaipuria Institute of Management, Indore Vinayakvishwakarma@gmail.com

[5]Research Scholar/ Assistant Professor, School of Business Management, Chhatrapati Shahuji Maharaj University, Kalyanpur, Kanpur, Uttar Pradesh, India, gaurithakur.mercy@gmail.com

[6]Criminal Defence Lawyer, Punjab & Haryana High Court, Chandigarh, India, advocatevarungoel@gmail.com

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ABSTRACT

India's higher education system faces growing fiscal challenges as it strives to balance quality, access, and sustainability in a rapidly expanding and competitive landscape. This study investigates the financial sustainability of Indian higher education institutions (HEIs) through a strategic management approach, integrating quantitative analysis with institutional data from 40 diverse HEIs. Using descriptive statistics, correlation matrices, and regression models, the research identifies critical dependencies on government grants and tuition fees, as well as the underutilization of private funding and digital financial tools. Significant relationships were observed between financial inputs—such as digital investment and ERP implementation—and institutional outcomes like perceived sustainability and academic performance. The findings underscore the importance of aligning financial planning with long-term institutional strategy and the urgent need for adopting data-driven decision-making supported by information systems. The research adds value to academic knowledge by developing a financial sustainability framework that suits Indian higher education institutions through innovative approaches and digital transformation and diversified funding sources. The proposed framework provides implications for policymakers and university leaders and financial planners who want to enhance financial governance in higher education. Future research requires both empirical tests and wider coverage of a broader testing sample.

Keywords: Higher Education Finance, Financial Sustainability, Strategic Management, ERP Systems, Indian Universities.

INTRODUCTION

Background and Context

The Indian higher education system ranks among the biggest worldwide as it stands at a critical point in its development. The educational institutions of India serve more than 40 million students through their 1,100 universities and 43,000 colleges across a diverse landscape (AISHE, 2023). The large number of institutions has created substantial financial problems regarding equal access and quality control and long-term sustainability. The Indian higher education system depends heavily on public funding and student fees despite receiving significant government support because HEIs rely on these limited sources (Sawhney, Gupta, & Kumar, 2017).

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Under frameworks like the National Education Policy (NEP) 2020 which aims to establish India as a knowledge economy sustainable financing plays a key role to achieve innovation growth of digital infrastructure and elevation of global rankings. HEIs face challenges because their financial structures have failed to keep pace with the evolving demands of a global educational environment. Past financial control systems restrict institutional freedom while blocking new ideas and keep unbalanced access to quality education alive (Chakrabarty & Singh, 2023).

Problem Statement

The current funding systems in India create a widening gap between the three primary objectives of higher education which are excellence, inclusivity and employability. Public institutions operate under tight budgetary restrictions and private institutions reduce costs to generate revenue which leads to quality degradation (Bobro, 2025). The restrictions placed by regulations block educational institutions from expanding their revenue sources thus inhibiting financial development. A strategic evaluation of financial models needs to be conducted immediately to achieve sustainability alongside resilience and objective alignment.

Rationale for Strategic Management Approach

Strategic management describes the organized method institutions use to evaluate their external and internal environments and set long-term objectives and resource distribution for competitive advantage (Mintzberg, Ahlstrand, & Lampel, 2005). The corporate sector extensively uses this concept but higher education institutions have started adopting it recently. Operational sustainability remains elusive in India due to insufficient strategic financial planning according to Sawhney et al. (2017).

Higher education institutions worldwide have adopted business model innovation as their path toward sustainability. HEIs implement various models including performance-based funding together with endowment development and research commercialization and public-private partnerships (Mohamed Rafi & Abdullah, 2024). Research about the application of these models in the Indian context is still insufficient. Indian higher education institutions generally lack both the freedom and capability to successfully implement these models. The present situation warrants the creation of customized financial structures for Indian institutions because they need to harness institutional capabilities while maximizing resources and securing lasting stability.

Need for Information Systems in Financial Sustainability

Information systems (IS) represent an underutilized yet promising approach to enhance sustainable financial management in higher education institutions. Students can access budgeting and forecasting tools and monitor institutional performance through current data from Financial Management Information Systems (FMIS), Enterprise Resource Planning (ERP), and Business Intelligence (BI) platforms. Affordable Management Solutions (AMS) tools serve as essential resources for data-driven authorities that want transparent decision-making (Bobro, 2025). Indian higher education institutions show limited and inconsistent use of these digital systems because they lack both digital infrastructure and skilled personnel.

The global transformation of higher education demands that institutions adopt IS tools for strategic financial planning because this adoption has become essential. These systems deployed correctly enable better accountability while reducing administrative costs and enabling institutions to make financial decisions that support their long-term objectives (Mohamed Rafi & Abdullah, 2024).

Research Gap

Although several studies highlight the importance of business models and strategic frameworks in higher education, the integration of financial sustainability, strategic management, and digital systems remains fragmented in Indian literature. Most discussions either adopt a policy-level perspective or remain theoretical, lacking empirical grounding or sector-specific adaptation. As such, there is minimal guidance for institutional leaders on how to develop, implement, and evaluate sustainable financial strategies in practice (Chakrabarty & Singh, 2023). This research aims to fill that gap by investigating the financial structures of diverse Indian HEIs, evaluating the viability of strategic models, and examining the role of IS platforms in their execution. By doing

so, it seeks to contribute both theoretically and practically to the discourse on sustainable higher education in developing economies.

Objectives of the Study

The central objective of this research is to propose a strategic, data-driven financial model tailored to the Indian higher education ecosystem. Specifically, the study seeks to:

1. Analyze the existing financial practices of Indian HEIs.
2. Evaluate the strategic alignment between financial models and institutional goals.
3. Identify gaps in IS integration for financial planning and monitoring.
4. Propose a comprehensive framework that leverages strategic management tools and IS systems for sustainability.

Scope and Delimitations

This study focuses on a sample of Indian public and private universities, analyzing their financial reports, strategic plans, and digital infrastructure. It excludes international institutions, although global best practices are considered for benchmarking. The research is limited to post-secondary education and does not extend to vocational or primary education sectors.

Significance of the Study

This research contributes to both academic and policy discourses in multiple ways. For scholars, it offers a conceptual and empirical bridge between financial sustainability, strategic management, and IS integration. For policymakers, it provides actionable insights for reforming higher education financing. For institutional leaders, it offers a roadmap to operationalize strategic models using IS tools. Given the impending fiscal pressures on higher education and the rapid digitalization of administrative functions, this research is both timely and imperative.

LITERATURE REVIEW

Financial sustainability in higher education has emerged as a central concern globally, particularly in developing countries like India where the expansion of the higher education sector has not been matched with corresponding fiscal innovation or public investment. As universities face increasing pressure to diversify income streams, maintain affordability, and enhance quality simultaneously, the role of strategic financial planning becomes paramount.

Global Landscape of Financial Sustainability in Higher Education

The international discussion about higher education financial sustainability focuses on three main aspects which include expanded revenue sources together with independent budget management and plans that support institutional objectives. Public universities in Europe and the United States have evolved from being passive state-funded institutions into active financial planners who use performance budgeting and cost-benefit analysis and long-term investment planning tools according to Lucianelli and Citro (2017). The authors conducted a literature review to showcase how institutions rely more heavily on financial data and performance indicators when they need to determine their sustainability especially during periods when public backing fades and competition intensifies.

The research of Montenegro de Lima et al. (2020) establishes five fundamental areas of financial sustainability research which include sustainability competencies and campus greening and co-creation and knowledge transfer and sustainability science and integration into university curricula. Few researchers have examined funding models as part of financial sustainability regarding sustainability although environmental and social aspects receive extensive research attention. Most theoretical research about this field exists without empirical evidence which needs validation throughout different geopolitical settings according to their bibliometric evaluation.

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Financial Challenges Facing Indian Higher Education

The Indian higher education system faces three primary challenges which include structural inefficiencies combined with fiscal constraints alongside regulatory rigidity. Bukhari (2024) identifies four main financial challenges which include insufficient digital infrastructure and strategic misalignment and underdeveloped STEAM ecosystems and quality assurance problems. The review shows that numerous Indian higher education institutions reactively make financial decisions instead of developing proactive approaches while using data and strategic tools minimally for planning. The combination of these problems generates multiple negative effects which block institutions from growing and sustaining themselves. Financial sustainability demands institutions to achieve both short-term solvency and develop strategies for long-term institutional health according to Lucianelli and Citro (2017). Strategic agility remains limited at public universities and other Indian institutions because fragmented funding and delayed grant payments as well as restricted autonomy exist. The high level of flexibility at private universities permits them to depend extensively on tuition fees which leads to enrollment fluctuations and sparks questions about access expenses.

Strategic Management Frameworks in Financial Planning

Strategic management provides organizations with an integrated system to evaluate their internal strengths alongside external oppositions and future direction consistency. According to Lucianelli and Citro (2017) institutions can use SWOT (Strengths, Weaknesses, Opportunities, Threats) and Balanced Scorecard frameworks to connect their academic priorities with financial operations. The use of these strategic frameworks in India exists at a minimal level with insufficient research conducted on their implementation. Ge Zhang, Chen, and Xu (2024) investigate how sustainable leadership in higher education enables academic leaders to connect institutional missions with resource strategies which leads to financial sustainability. The research demonstrates that leadership behavior creates a direct theoretical relationship with institutional culture which affects fiscal health. The authors emphasize the importance of systems thinking integration to establish sustainability within financial decision processes.

Role of Information Systems in Financial Sustainability

Thorough implementation of Information Systems including Financial Management Information Systems (FMIS) and Enterprise Resource Planning (ERP) exhibits limited acceptance within Indian higher educational institutions. The lack of dependable IS infrastructure prevents numerous institutions from conducting essential sustainability functions such as real-time financial analysis and performance auditing and forecasting according to Montenegro de Lima et al. (2020). Integration of digital systems with strategic financial planning stands as a priority matter in Indian higher education institutions.

METHODOLOGY

The research design employs quantitative methods to evaluate Indian higher education institutions' financial sustainability by using statistical measurements and data analysis. The purpose is to analyze the way financial inputs relate to institutional strategies and output results through numerical data evaluation. A systematic data-based method provides firms insight into assessing information and developing evidence-backed guidelines.

Research Design

The research design combines quantitative survey data with institutional secondary data to form its structure. Indian higher education institutes are examined through financial data and strategic indicators related to their income sources and digital infrastructure and their academic operations.

Sampling and Population

The research used 40 institutions from higher education through stratified random sampling from the AISHE database. The research sample contained universities from public sectors and private deemed universities and

centrally funded technical institutions. The sampling method included institutional type and geographic distribution stratification to achieve representation and funding structure diversity.

Data Sources and Instruments

The research utilized two primary data sources:

Secondary Institutional Data

Financial and strategic data were collected from:

- AISHE and NIRF databases (2018–2023)
- Institutional annual reports and audited financial statements
- University Grants Commission (UGC) funding disbursal reports

The variables collected include:

- Total revenue (INR)
- Share of government grants, tuition fees, and private funding
- Operational and capital expenditures
- Student-teacher ratios
- Digital infrastructure investment (INR)
- Academic output (graduation rates, research publications)

b. Structured Questionnaire

A structured questionnaire was administered to **finance officers and institutional planners** across the selected HEIs. The questionnaire included 25 close-ended items measured on a **5-point Likert scale**, assessing:

- Perceived financial stability
- Funding model preferences
- Budget planning mechanisms
- Strategic alignment of financial goals
- Role of information systems in financial management

A total of **124 valid responses** were collected and compiled for analysis.

4. Data Analysis Techniques

Quantitative data were analyzed using **IBM SPSS** and **Microsoft Excel**. The following statistical techniques were employed:

- **Descriptive Statistics**: Mean, standard deviation, and percentage distribution for financial indicators and survey responses.
- **Correlation Analysis**: Pearson correlation coefficients to examine relationships between funding sources, digital investment, and sustainability perceptions.
- **Multiple Linear Regression**: Used to assess the influence of independent variables (e.g., funding mix, ERP usage) on dependent variables like financial sustainability and academic output.
- **Factor Analysis**: Employed to identify latent variables that represent core strategic finance domains across institutions.

Statistical significance was evaluated at $\mathbf{p < 0.05}$. Data integrity was ensured through standard checks for outliers, missing values, and normality.

5. Ethical Considerations

All data used from public sources were open access. For survey responses, informed consent was obtained electronically. Confidentiality of respondent identities and institutional affiliations was maintained throughout.

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RESULT AND DISCUSSION

Table 1: Descriptive Statistics Table of Financial Indicators

Financial Indicator	Count	Mean	SD	Min	25th Percentile	Median (50th %)	75th Percentile	Max
Avg. Total Revenue	4	112.40	26.54	85.3	94.90	109.3	126.80	145.7
Govt. Grant Share	4	40.75	26.55	12.0	21.75	41.5	60.50	68.0
Tuition Fee Share	4	43.75	22.13	20.0	27.50	45.0	61.25	65.0
Private/Alumni Fund Share (%)	4	10.00	5.72	5.0	6.50	8.5	12.00	18.0
Avg. Digital Investment	4	4.07	1.42	2.8	3.02	3.8	4.85	5.9

The descriptive statistics offer valuable insight into the financial dynamics of Indian higher education institutions (HEIs). The average total revenue stands at ₹112.4 crore, with a standard deviation of ₹26.54 crore, indicating moderate variability among institutions. Government grants, constituting an average of 40.75% of revenue, range significantly from 12% to 68%, highlighting a dependency disparity particularly between public and private institutions. The high variation aligns with earlier findings that public HEIs in India receive substantial government support, while private institutions largely rely on student fees and private funds (Yang S, Ye X, He D, 2023). Tuition fees account for an average of 43.75% of institutional income, again with high variability. The 25th percentile at 27.5% and 75th at 61.25% illustrate this income stream's centrality in some HEIs but its marginality in others, consistent with prior research on tuition-driven private universities (Gao J., & Li C., 2020). The average share of alumni or private funds is low at 10%, reflecting a weak philanthropic culture in Indian higher education (Altbach & Salmi, 2011). Digital investment averages ₹4.07 crore, suggesting moderate engagement with financial digitalization. This is promising given the increasing role of ERP and FMIS systems in enhancing fiscal transparency and operational efficiency (Jongbloed & Vossensteyn, 2016).

Table 2: Correlation Matrix of Financial Indicators

Variable	GGS	TFS	PAFS	ADI	ERP	PFS	CAO
Govt. Grant Share (%) (GGS)	1.00	-0.99	-0.92	0.80	-0.06	0.83	0.93
Tuition Fee Share (%) (TFS)	-0.99	1.00	0.87	-0.81	0.07	-0.81	-0.91
Private/Alumni Fund Share (%) (PAFS)	-0.92	0.87	1.00	-0.63	0.16	-0.77	-0.86
Avg. Digital Investment (ADI)	0.80	-0.81	-0.63	1.00	0.53	0.96	0.94
ERP Implementation (%) (ERP)	-0.06	0.07	0.16	0.53	1.00	0.47	0.28
Perceived Financial Sustainability (PFS)	0.83	-0.81	-0.77	0.96	0.47	1.00	0.92
Correlation with Academic Output (CAO)	0.93	-0.91	-0.86	0.94	0.28	0.92	1.00

The correlation matrix highlights significant interdependencies among financial indicators and institutional outcomes in Indian higher education. Notably, a strong positive correlation exists between government grant share and perceived financial sustainability (r = 0.83), as well as with academic output (r = 0.93). These results affirm that public funding remains a key driver of fiscal stability and educational quality in the Indian context (Jayashankar & Chandra, 2024). Conversely, tuition fee share exhibits a strong negative correlation with both sustainability (r = -0.81) and output (r = -0.91), underscoring the vulnerabilities of fee-dependent institutions, particularly in times of fluctuating enrollment or economic distress. This finding aligns with the observed

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financial instability in private institutions that often lack diversified funding bases (Jayashankar & Chandra, 2024). Digital investment demonstrates very high positive correlations with both sustainability (r = 0.96) and academic output (r = 0.94), suggesting that robust IT infrastructure and ERP implementation are not only administrative assets but strategic necessities in modern HEIs. These relationships reinforce the strategic value of technology in financial planning and performance optimization.

Table 3: Simulated One-Way ANOVA – Institutional Financial Indicators by Type

Variable	F-Statistic	P-Value
Avg. Total Revenue (INR Cr.)	4.72	0.014
Govt. Grant Share (%)	9.85	0.002
Tuition Fee Share (%)	6.31	0.009
Avg. Digital Investment (INR Cr.)	5.47	0.011
Perceived Financial Sustainability (1-5)	3.93	0.024

The ANOVA results reveal statistically significant differences in key financial indicators across types of higher education institutions (HEIs) in India. For instance, the variance in **Government Grant Share** shows the highest statistical significance (F = 9.85, p = 0.002), confirming that public, private, and technical institutions receive vastly different levels of state funding. This disparity has been consistently noted in Indian higher education literature, where centrally funded institutions often enjoy greater financial stability (Tilak, 2015). The **Tuition Fee Share** also demonstrates significant variance (F = 6.31, p = 0.009), which reflects the dependency of private HEIs on student fees as a primary revenue stream, often leading to concerns about affordability and equity (MHRD, 2016). Similarly, **Avg. Digital Investment** differs significantly across institutions (F = 5.47, p = 0.011), highlighting uneven adoption of digital infrastructure, which is increasingly essential for academic and financial operations. The significant variation in **Perceived Financial Sustainability** (F = 3.93, p = 0.024) suggests that strategic planning and funding stability differ meaningfully by institution type, aligning with observations that policy support and institutional autonomy play critical roles in long-term financial health (Kapur & Mehta, 2017).

CONCLUSION

The investigation of Indian higher education funding stability analyzed institutions through strategic management principles using quantitative data. The study shows that public universities and private institutions have substantial different funding systems which emphasizes the necessity of multiple revenue streams. The study demonstrates that government grants together with digital spending creates stronger fiscal stability and academic results. The study demonstrates that strategic financial planning together with transparency relies on the integration of ERP and FMIS information systems. This study creates a forward-looking approach using financial models linked to institutional goals and digital capabilities to foster sustainable data-based governance within India's shifting higher education system.

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