

Financial Technologies Impact on Higher Education Institution Budgeting and Financial Planning

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Abstract

This study investigates the impact of financial technologies on the budgeting and financial planning practices of private Higher Education Institutions (HEIs). The primary objectives are to identify the most adopted financial technologies, evaluate the extent of cash flow management practices, and assess the implementation of digital payment systems. The study utilized a Comparative research design to determine the differences in perception between teaching staff (N = 50) and non-teaching staff (N = 50) regarding these technologies. Data were collected through surveys and analyzed to determine the levels of adoption and effectiveness of various financial technologies. The findings reveal that digital payment systems are the most widely adopted, followed by Oracle Financials and Enterprise Resource Planning (ERP) systems. HEIs demonstrate strong practices in revenue diversification, strategic budgeting, cost control, and financial reserve management. However, concerns about the accuracy of financial reporting indicate a need for improvement. Significant differences in perceptions and attitudes towards financial technologies were found between teaching and non-teaching staff, highlighting the necessity for targeted interventions. Based on these findings, a comprehensive financial technology plan is proposed, focusing on enhancing perceived use, improving ease of use, fostering positive attitudes, and increasing actual usage of financial technologies. The plan includes specific actions, responsibilities, and timelines to ensure effective implementation. This research underscores the importance of continuous investment in financial technologies and strategic planning to enhance financial management practices in HEIs. By addressing the identified gaps and leveraging existing strengths, institutions can achieve greater efficiency, accuracy, and innovation in their financial operations, ultimately leading to improved financial stability and performance.

Keywords: Financial Technology, HEIs, Financial Planning, Budgeting

Introduction

FinTech has become a potent catalyst for change in different industries, especially higher education institutions (HEIs). Integrating FinTech in Higher Education Institutions (HEIs) is crucial for improving financial management, increasing operational effectiveness, and enabling informed strategic decision-making. This introduction highlights the importance of Financial Technology (FinTech) in Higher Education Institutions (HEIs) by analyzing its impact on key areas such as financial planning, budgeting, cash flow management, and overall institutional effectiveness.



FinTech refers to the utilization of digital advancements to enhance and streamline financial procedures and services. These technologies strive to provide efficient and easily available financial solutions, frequently disrupting traditional financial services (Tcvetova, 2020; Renduchintala, Alfauri, et al., 2022; Zhu & Chu, 2023). The main objective of FinTech is to leverage technology in various financial and banking services to improve financial activities. It combines finance, technology management, and innovation management to provide services that rival traditional financial products. FinTech solutions are specifically developed to simplify tasks like borrowing, investment, payment processing, and wealth management. These solutions are accessed through digital platforms that may be used on smartphones and tablets (Dawood, Liew et al., 2021).

FinTech is crucial in transforming the financial industry by introducing innovative business models, technologies, and procedures that improve financial markets and institutions. FinTech enhances financial systems, client experiences, and operational efficiency by integrating financial services with technology (Chemmanur, Imerman et al., 2020; Ilhan, 2020; Błach & Klimontowicz, 2021; Risha & Samudro, 2021; Farahani, Esfahani et al., 2022; Shakhzodbek, 2022). These innovations are now crucial elements of modern financial systems, offering a diverse array of options to cater to different financial demands and tastes.

Important breakthroughs in Financial Technology (FinTech) that are relevant to Higher Education Institutions (HEIs) include technology for digital payments, audit systems based on Artificial Intelligence (AI), paradigms for taking sustainable actions, and methods for managing innovation. The implementation of digital payment technology, specifically the Unified Payment Interface (UPI), has brought about a substantial revolution in financial transactions, resulting in improved efficiency and convenience for students, instructors, and staff (Rastogi, Panse, et al., 2021; Mahesh & S, 2022). AI-powered audit solutions enhance audit operations, guaranteeing adherence to regulations, precision, and efficiency in financial management and reporting (Khan, Adi et al., 2021). Sustainability action models help Higher Education Institutions (HEIs) incorporate sustainability principles into their financial operations, in line with their environmental and social responsibility goals. Innovation management solutions, such as the implementation of Light Emitting Diode (LED) technology, tackle sustainability issues and promote technical advancement (Mwombeki, 2023).

The adoption of FinTech in Higher Education Institutions (HEIs) is influenced by various elements such as government assistance, trust, perceived usefulness, attitude, social influence, perceived risks, utility, socioeconomic influences, trust in mobile devices, and the preferences of younger generations. The provision of government aid can have a substantial influence on the inclination of Higher Education Institutions (HEIs) to integrate FinTech solutions into their financial planning (Das & Das, 2022). Ensuring the successful integration of FinTech services relies heavily on the trustworthiness, safety, and effectiveness of these services (Das & Das, 2022; Rubaiai & Pria, 2022; Taujanskaitė & Kuizinaitė, 2022; Zakariyah, Salaudeen et al., 2023). The perceived utility of FinTech solutions in optimizing financial processes and enhancing efficiency has a beneficial impact on their adoption (Zhong-qing, Ding et al., 2019; Das & Das, 2022). Positive attitudes and social influences from peers or colleagues might serve as a motivating factor for Higher Education Institutions (HEIs) to adopt and use Financial Technology (FinTech) (Diéguez, Velicia-Martín et al., 2023). Nevertheless, the adoption of [something] may be impeded by perceived risks associated with data security, privacy, and financial uncertainty (Abdul-Rahim, Bohari et al., 2022; Das & Das, 2022; Rubaiai & Pria, 2022).

The influence of Financial Technology (FinTech) on the process of financial planning, reporting, and transparency in Higher Education Institutions (HEIs) is significant. FinTech solutions optimize forecast



accuracy and performance, promote cost reduction and efficiency, and enable data-driven decision-making. Recent studies have demonstrated that the use of AI-driven models, machine learning techniques, and advanced forecasting models has led to significant improvements in forecast accuracy. This, in turn, has resulted in more reliable financial planning outcomes. These findings are supported by several researchers, including Xu (2024), Hlel and Nafti (2019), Elsheikh, Saba, et al. (2021), Khalid, Javaid, et al. (2019), Sandhu (2021), Sung, Ryu, et al. (2020), Terregrossa and Ibadi (2021), Zhang, Yu et al. (2020), Yu, Huang, et al. (2020), and Schwartz, Webb et al. (2019).

Efficient management of cash flow is essential for maintaining financial stability and implementing strategic initiatives at Higher Education Institutions (HEIs). Effective cash flow management requires implementing comprehensive budget planning, precise cash flow forecasting, diversifying income sources, optimizing spending management, and strategically utilizing borrowing. Technology and automation greatly increase these procedures, offering immediate insights and enhancing financial management techniques (Ilhan, 2020; Iman, 2020; Janahi, Millo, et al., 2020; José Carlos Pereira de, 2024; Sampat, Mogaji, et al., 2023).

The present study aims to assess the influence of financial technologies on the budgeting and financial planning of Higher Education Institutions (HEIs). This study examines the utilization of these technologies in higher education institutions and evaluates their efficacy in enhancing financial operations. The study aims to comprehend the advantages and obstacles linked to FinTech's present adoption and incorporation in Higher Education Institutions (HEIs). It also intends to assess the potential of these technologies to revolutionize financial management practices in higher education.

Financial technologies provide substantial assistance to higher education institutions (HEIs) by offering sustainable resources, ensuring their ongoing existence, and facilitating the efficient delivery of high-quality education. By utilizing Financial Technology (FinTech), Higher Education Institutions (HEIs) can attain increased financial stability, maximize the usage of resources, and improve their ability to deliver exceptional educational services. This research highlights the significance of embracing financial innovations to ensure higher education institutions' long-term sustainability and effectiveness (HEIs).

This research intends to provide significant insights into best practices and potential risks by analyzing the utilization of FinTech advances in enhancing budgeting and financial planning. The results will enhance our comprehension of how private higher education institutions (HEIs) might utilize financial technology (FinTech) to attain financial stability, optimize resource utilization, and enhance overall financial performance. As a result, this research will provide specific suggestions for private higher education institutions (HEIs) to adopt and incorporate financial innovations. These recommendations will assist HEIs in achieving their goal of delivering excellent education and guaranteeing their long-term viability.

Objectives of the Study

The objectives of this study are 1) to determine the financial technologies that are most adopted in higher education institutions (HEIs); 2) to evaluate the cash flow management practices in HEIs, specifically regarding: revenue diversification, strategic budgeting, and forecasting, cost control and efficiency, financial reserves and liquidity management, and use of technology and innovation; 3) To what analyze the digital payment systems implemented in HEIs in terms of: Perceived usefulness, Perceived ease of use, Attitude toward technology Behavioral intention and actual usage; 4) to analyze the differences in



perceptions between teaching and non-teaching staff regarding the implementation of financial technologies in HEIs.

Methodology

Comparative design was utilized in the study. It is a methodological strategy that entails the comparison of two or more groups, conditions, interventions, or variables to assess differences, similarities, or correlations among them. Comparative research design enables researchers to present more persuasive arguments on the relative efficacy of various treatments when compared to studies that only use a single-treatment control group (Basham, 1986). The study aims to resolve the inherent challenges in comparative research by offering a well-organized framework for conducting studies that entail making comparisons (Holcombe et al., 1994).

Participants and Sampling. The study employed a purposive sampling technique. This method entails purposefully choosing participants according to certain criteria, rendering it appropriate for targeted research. Unlike probability sampling, this method does not necessitate comprehensive knowledge about the entire population or a substantial sample size.

The survey encompassed personnel from specifically chosen higher education institutions (HEIs) who satisfied the following criteria:

- a) Presently working in the Higher Education Institutions (HEIs), either in an academic or non-teaching role.
- b) Has been working at the Higher Education Institutions (HEIs) for a minimum of two years.

This criteria guarantees that the participants possess pertinent expertise and understanding of the financial and operational facets of Higher Education Institutions (HEIs).

Research Instruments. To accomplish the goals of the study, the researcher will utilize a questionnaire consisting of three distinct sections. The initial component comprises a personal demographic questionnaire intended to collect data on the respondents' profile factors, including age, gender, position, and years of employment in the Higher Education Institutions (HEIs).

The subsequent section centers on the implementation of cash flow management strategies. The primary goal of this part is to evaluate the existing techniques employed in controlling cash flow in Higher Education Institutions (HEIs). The objective is to identify areas that need improvement and gather substantial data on the efficacy of financial management procedures. This information will then be used to support strategic planning and decision-making processes.

The third segment assesses the integration of financial technologies in higher education institutions (HEIs). The objective is to evaluate the efficiency and adoption of financial technology by gathering data on perceived usefulness, user-friendliness, attitudes toward technology, and actual usage trends. The responses will facilitate strategic planning, enhance user experience, and inform future technological expenditures.

Procedures. The data collection for this study on the influence of financial technologies on the financial planning and budgeting of Higher Education Institutions (HEIs) will commence by acquiring official authorization from the University of the Perpetual Help Dalta System. After obtaining consent,



potential participants will be chosen according to predetermined criteria for inclusion and exclusion. The researcher will schedule meetings and conduct surveys or interviews at convenient venues for the participants or utilize online platforms according to their preferences and skills. To guarantee precision and dependability, the researcher will create several comprehensive questionnaires to collect data on the participants' profiles, leadership qualities, and strategies for managing changes. The gathered data will be securely preserved, and suitable statistical methods will be employed to analyze the data and evaluate the correlation between leadership and change management.

Data Analysis. The study utilized statistical analysis to investigate the influence of financial technologies on the financial planning and budgeting of Higher Education Institutions (HEIs) utilizing SPSS version 21. The researchers used the following descriptive and inferential statistics:

Initially, the frequencies and percentages will be employed to scrutinize the responses to the survey questions and the demographic information of the participants. This will offer a precise depiction of how responses are allocated among various demographic cohorts.

Next, the weighted mean will be calculated to assess the levels of satisfaction and the extent of digital transformation. The measure of central tendency in question represents the average response of participants, considering the weights assigned to different responses on a Likert scale. The analysis will employ a four-point Likert scale to offer descriptive explanations of the responses.

Lastly, a t-test for independent samples will be performed to see if there is a statistically significant difference between the means of two separate groups. This test will assess the statistical significance of the difference in means between the two groups by calculating a t-value, which will then be compared to a critical value to determine if the difference is significant.

Ethical consideration. The study will strictly adhere to rigorous ethical standards to guarantee the integrity and confidentiality of the research process. Participants will get comprehensive information regarding the objective, methodologies, and any hazards associated with the study, and they will be required to give written consent before their involvement.

All personal and demographic information gathered will be treated as confidential, and the data will be anonymized to safeguard the participants' identities. Engagement in the research is completely optional, and individuals have the freedom to discontinue their involvement at any point without facing any repercussions.

The study team will securely preserve all collected data and ensure that it is only available to them. Robust passwords and encryption will safeguard digital data. The study will be carefully planned to mitigate any potential harm to the participants, guaranteeing the absence of physical, psychological, or emotional hazards. Ultimately, the project will obtain authorization from the Ethics Review Board of the University of the Perpetual Help Dalta System to guarantee strict adherence to ethical principles.

Results and Discussion

The goal of the study is to assess the influence of financial technology on the budgeting and financial planning procedures of private higher education institutions (HEIs). The findings are analyzed in connection with the prevailing financial technologies, the degree of cash flow management methods, the amount of adoption of digital payment systems, and the perspectives of both teaching and non-teaching



personnel. The study also investigates notable disparities in attitudes between these two groups, which subsequently result in suggested improvements for the financial technology plan.

1. Financial Technologies used by HEIs

Table 1 *Most Adopted Financial Technologies in HEIs*

Financial Technologies	Frequency	Percentage
Digital payment	60	60
Oracle financials	20	20
Enterprise resource planning	20	20
Total	100	100

Table 1 shows that digital payment systems are the most used financial technology in higher education institutions (HEIs), with a frequency of 60, or 60% of the total. Both Oracle Financials and Enterprise Resource Planning (ERP) systems have an equal adoption rate of 20, representing 20% each.

The substantial adoption of digital payment systems (60%) underscores the increasing inclination towards non-cash transactions and the need for effective, safe, and convenient payment methods at higher education institutions (HEIs). The significant adoption rate can be ascribed to the user-friendly interface, extensive acceptance among students and staff, and operational advantages obtained from efficient financial transactions. Oracle Financials and ERP systems each constitute 20% of the applied technologies. These systems are crucial for a thorough financial administration, encompassing accounting, budgeting, and financial reporting, while also integrating various administrative responsibilities throughout the institution.

2. Cash flow management practices of HEIs

Effective cash flow management is crucial for higher education institutions (HEIs) to ensure financial stability, support strategic objectives, and allocate resources efficiently.

Higher education institutions (HEIs) typically employ robust strategic budgeting and forecasting methods, as evidenced by an average score of 3.12. Institutions frequently evaluate and revise their budgeting procedures to accurately reflect present financial circumstances, employing sophisticated forecasting methods to anticipate future financial patterns and requirements.

The cost management and efficiency measures in Higher Education Institutions (HEIs) are highly regarded, achieving an overall mean score of 3.10. Institutions give priority to necessary spending, consistently enhance operational efficiency, and promote staff to propose ways that save costs.

The financial reserves and liquidity management methods of Higher Education Institutions (HEIs) were well-rated, with an average score of 2.91. Institutions ensure sufficient cash reserves, consistently monitor liquidity ratios and strategically manage financial reserves to maintain a balance between risk and reward.



The utilization of technology and innovation in the implementation of cash flow management methods is highly regarded, as indicated by an average score of 2.61. Higher education institutions (HEIs) utilize sophisticated financial management software, and digital payment systems, and offer comprehensive training to personnel to ensure efficient utilization of financial technologies.

3. Level of Implementation of Digital Payment System

Implementing digital payment systems at higher education institutions (HEIs) is crucial for improving financial efficiency, security, and ease in handling financial transactions.

The level of adoption of digital payment systems in higher education institutions (HEIs) is generally strong, as indicated by an average score of 2.63. Digital payment systems are highly regarded for enhancing efficiency, precision, and decision-making in financial administration.

The perceived ease of use of digital payment systems is highly rated, with an average score of 2.91. Users perceive these systems as easily usable and receive ample support in terms of training and integration with current systems.

People generally have a favorable view of digital payment systems, as indicated by an average score of 2.91. There is substantial backing for the ongoing utilization and advancement of financial technologies in higher education institutions (HEIs).

The behavioral intention and actual usage of digital payment systems are highly regarded, achieving an overall mean score of 3.10. There is a resolute determination to persist in using these technologies, with a gradual escalation in utilization over time.

4. Differences between teaching and non-teaching staff's perception

The survey revealed substantial disparities between teaching and non-teaching staff regarding their perspectives on financial technologies. Teaching staff typically hold more favorable opinions and exhibit more intentions to use compared to non-teaching staff. This indicates a requirement for focused initiatives to enhance the perspectives and attitudes of non-teaching staff towards financial technologies through training programs and continuous assistance.

These findings emphasize the significance of using and incorporating financial technologies in higher education institutions (HEIs) to improve financial management, operational efficiency, and strategic planning. By addressing the disparities in how different staff groups see things, we may enhance the overall deployment and utilization of these technologies.

The results of this study have significant ramifications for higher education institutions (HEIs). Adopting financial technologies, namely digital payment systems, improves the efficiency, security, and ease of financial transactions at higher education institutions (HEIs), leading to enhanced financial management. Furthermore, the use of efficient cash flow management strategies, such as diversifying revenue sources and employing strategic budgeting techniques, guarantees the optimal allocation of resources.



 Table 4

 Differences between Teaching and Non-Teaching Personnel On the Level of Implementation of Financial Technologies

Implementation of Financial Technologies	Groups	Mean (SD)	<i>t</i> - value	p- value	Decision	Interpretation on H ₀
Perceived use	Teaching	3.45			Reject	Significant
		(0.08)	1.56	0.03	H_0	
	Non-	3.30				
	teaching	(0.23)				
Perceived ease of	Teaching	3.33			Accept	Not
use		(0.34)	2.20	0.56	H_{0}	Significant
	Non-	3.32				
	teaching	(0.11)				
Attitude toward	Teaching	3.40			Reject	Significant
technology		(0.19)	2.23	0.04	H_{0}	
	Non-	3.10				
	teaching	(1.00)				
Behavioral	Teaching	3.56			Reject	Significant
Intention and		(0.25)	1.55	0.05	H_{0}	
Actual Usage	Non-teaching	3.20				
		(0.80)				

This contributes to the fulfillment of institutional objectives and ensures sustained financial stability in the long run. The favorable outlooks and strong perception of convenience for digital payment systems underscore the significance of incorporating sophisticated financial technologies into current systems. Integration of several components can result in enhanced financial decision-making and improved operational efficiency. Moreover, it is essential to offer extensive training and support for financial technology to fully optimize their advantages. Ensuring that personnel are both confident and adept in utilizing these technologies can significantly improve their effectiveness and rates of adoption.

Additionally, the study reveals notable disparities in opinions between teaching and non-teaching staff about financial technologies. To promote greater and more widespread adoption of financial technologies within HEIs, it is important to address these differences in perception through focused training and communication. Generally, the study highlights the crucial importance of financial technologies in improving the financial planning and budgeting procedures of higher education institutions (HEIs). By utilizing these technologies, Higher Education Institutions (HEIs) can attain enhanced financial stability, operational efficiency, and strategic adaptability.

Conclusion

There is a notable disparity in the viewpoints of teaching and non-teaching personnel concerning financial technologies. Teaching staff typically hold more favorable opinions and exhibit more intentions to use compared to non-teaching staff.



These findings lead to the formulation of many recommendations. Initially, Higher Education Institutions (HEIs) should persist in allocating resources and improving digital payment systems to enhance the efficiency, security, and user experience of financial transactions. This encompasses the enhancement of current systems and the integration of novel technologies. Furthermore, institutions should uphold and enhance their cash flow management procedures by consistently pursuing various sources of income, employing sophisticated prediction techniques, giving priority to crucial expenditures, and strategically handling financial reserves.

Recommendation

To optimize the advantages of financial technologies, Higher Education Institutions (HEIs) should offer thorough training and assistance to their staff. This will guarantee that staff possess the necessary skills and expertise to effectively and successfully utilize new technologies, thereby improving their overall performance and increasing the pace at which they are adopted. Furthermore, it is crucial to implement specific initiatives to bridge the perception disparities between teaching and non-teaching personnel. This can be accomplished by implementing customized training programs, showcasing the benefits, and providing continuous assistance to encourage comprehensive and widespread acceptance of financial technologies.

In addition, Higher Education Institutions (HEIs) should cultivate a culture that promotes ongoing enhancement in financial management procedures. Periodic assessments and revisions of financial technologies and management techniques will enable institutions to remain flexible and responsive to evolving financial environments.

This study offers useful insights into the adoption and effects of financial technologies in higher education institutions (HEIs), providing practical contributions in several ways. The findings provide practical advice for Higher Education Institutions (HEIs) on how to improve their financial management processes by implementing sophisticated financial technologies. The recommendations of the study can guide the creation of policies and initiatives that aim to enhance the processes of financial planning and budgeting in Higher Education Institutions (HEIs). The research findings can be utilized to develop efficient training programs that cater to the requirements and perspectives of various staff categories, hence facilitating enhanced integration and utilization of financial technologies.

The study emphasizes the significance of strategic allocation of resources, integration of technology, and ongoing development, offering a framework for Higher Education Institutions (HEIs) to attain enhanced financial stability and operational efficiency. In summary, this research highlights the crucial importance of financial technology in improving the financial planning and budgeting procedures of Higher Education Institutions (HEIs), hence supporting their long-term sustainability and achievement.

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