DATA ANALYTICS PRACTICES AND PERFORMANCE OF MICRO-LENDING INSTITUTIONS IN NAIROBI COUNTY, KENYA

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ABSTRACT

This study sought to determine the influence of data analytics practices and performance of micro-lending institutions in Nairobi County, Kenya. Specifically, the study sought to assess the influence of user Experience Analytics on performance of micro-lending institutions in Nairobi County, Kenya and to establish the influence of IT Cost Analytics on performance of micro-lending institutions in Nairobi County, Kenya. This study used descriptive research design. The unit of analysis was therefore the 14 Microfinance Institutions while the unit of observation was 126 management employees working in these Microfinance Institutions. Due to small target population, census approach was appropriate for selecting the sample for this study, and the sample size for the study was 126 respondents. This research used a questionnaire to collect primary data. Fourteen questionnaires were piloted that represented 10% of the target population. The study collected quantitative data which was analysed using descriptive and inferential statistics using the Statistical Package for Social Sciences (SPSS) version 24. Multivariate linear regression was used to determine the relationship between the dependent and independent variables. The regression analysis revealed significant coefficients for each study variable. Experience Analytics had a coefficient of .273 (p < .002) and IT Cost Analytics demonstrated a coefficient of .292 (p < .000). These findings suggest that each type of analytics practice significantly influences the performance of micro-lending institutions in Nairobi County, Kenya. In conclusion, the study underscores the importance of leveraging data analytics practices to enhance organizational performance in the micro-lending sector. Based on the findings, recommendations are made for micro-lending institutions to prioritize investments in experience analytics and IT cost analytics to improve their operational efficiency, risk management, and decision-making processes. By adopting and integrating these analytics practices into their business operations, micro-lending institutions can enhance their competitive advantage and achieve sustainable growth in the dynamic financial landscape of Nairobi County, Kenya.

Key Words: Data Analytics Practices, User Experience Analytics, Performance, IT Cost Analytics, Micro-Lending Institutions

Background of the Study

Microfinance Institutions [MFIs] are financial organizations established to allow deposits and lend micro-credits low-income borrowers (Association of Microfinance Financial Institutions in Kenya [AMFIK], 2023). These institutions are key to the development of any economy since they link low-income borrowers to financial support that would help them in investing in various businesses. Additionally, they also offer sound financial advisory to their clients on the various ways they could invest their wealth in purchase of securities (Guizani, 2020). Further, the institutions offer deposit and savings accounts solutions that are payable with interest hence providing a safe place to store huge amounts of personal finances (Henry, 2019).

MFIs have a goal of accepting client's deposit and act as financial lenders such that they operate within the laid down policy structure. This structure should be developed by highly experienced board members whose decisions influence positively the general direction of the operations (Era, 2019). Additionally, they should have adequate capital structure that comprises of both debt and equity to implement various products to the customers. An increased uptake will promote raised revenue hence high liquidity (AMFIK, 2023). Notably, they should also ensure that disbursed loans are only issued to qualified clients to minimize credit risks hence improving the overall financial performance (Ghorpade, & Iyer, 2021).

Data analytics practices refer to the systematic and strategic activities undertaken to analyze and interpret data to extract valuable insights, identify patterns, and make informed decisions. These practices involve the use of various techniques, tools, and technologies to process, organize, and analyze large sets of data with the goal of uncovering meaningful information (Gangwar, 2017). Security analytics is a critical component of data analytics practices that focuses on monitoring and analyzing data to detect and respond to cybersecurity threats. In the context of micro-lending institutions, security analytics involves safeguarding sensitive customer information, financial data, and transaction records. By employing advanced analytics tools and techniques, institutions can identify anomalous patterns or potential security breaches, allowing for timely intervention and prevention of data breaches. Ensuring robust security analytics is imperative for maintaining trust with clients and adhering to regulatory standards, particularly in the financial sector where data confidentiality, availability and integrity are paramount (Chornous & Gura, 2020).

User experience analytics revolves around understanding and improving the interactions between users and digital platforms. In the micro-lending sector, this involves analyzing how customers navigate through digital interfaces, complete transactions, and engage with financial services. By employing user experience analytics, micro-lending institutions can enhance their online platforms, streamline application processes, and tailor services to meet the specific needs of their clientele. A positive user experience not only fosters customer satisfaction but also contributes to increased customer retention and loyalty, making it a crucial aspect of data analytics practices for micro-lending institutions seeking to stay competitive in the digital era (Azam, & Ahmad, 2023).

Cloud analytics involves the use of data analytics tools and techniques on cloud-based platforms. For micro-lending institutions, leveraging cloud analytics enables the efficient storage, processing, and analysis of vast amounts of financial and customer data. Cloud-based analytics solutions provide scalability and flexibility, allowing institutions to adapt to changing data volumes and analytical requirements. This component of data analytics practices enables micro-lenders to harness the power of big data analytics without the need for extensive on-premises infrastructure. It promotes cost-effectiveness, accessibility, and agility in managing and extracting value from large datasets (Aljumah, Nuseir, & Alam, 2021).

IT cost analytics involves the examination and optimization of IT-related expenses within an organization. In the context of micro-lending institutions, this includes analyzing the costs associated with maintaining and upgrading technological infrastructure, software solutions, and cybersecurity measures. Through IT cost analytics, institutions can identify areas for cost reduction, enhance resource allocation, and ensure that IT investments align with business objectives. This component of data analytics practices is crucial for maintaining financial sustainability, especially for micro-lenders operating in resource-constrained environments where optimizing IT expenditures can positively impact overall operational efficiency and profitability (Ali, *et al*, 2020). This study therefore sought to determine the influence of data analytics practices and performance of micro-lending institutions in Nairobi County, Kenya

Statement of the Problem

According to CBK annual supervision report, 2019 there is low performance incidence of MFIs mirrored in the rising extent of non-performing loans in the past 10 years which negatively impacts productivity of the MFIs. With such a trend, the viability as well as sustainability of MFIs is hindered and hence the goal achievement of offering loans to customers to both banked and unbanked in order to bridge financial gaps and to mainstream the Kenyan financial sector. Bad repayment of loans may be stemmed out through identification of risks as well as appraisal (Kipkemboi, 2012). Accordingly, the efficiency of risk appraisal directly influences loan performance (Muturi, 2012; Gichuki et al., 2016). Nevertheless, Auronen (2018) observes that irregular information theory posits that it is hard to demarcate good borrowers from the bad which demands critical appraisal of the total identified risks so that only the good borrowers can receive loans. The performance of MFIs in regards to loans appears less encouraging in spite of national development programs which give priority to sustainable financial services to low income Kenyans for quite a long time as offered by Yunus (1996).

CBK 2021 report indicates that the MFIs in Kenya have been experiencing high non-performing loans and as well as declined assets and low client deposits numbers (CBK, 2021). This is whereby the deposit made by the customers declined by Kshs 2.8 billion to be 48 billion in 2022 from 50.8 billion in 2021. This was partially caused by insufficient product diversification aspects like high interest rate earning deposit and savings accounts. Further, the report indicated that there was a decline of total assets by 1 percent in the year ended December 2021 to Kshs. 73.9 billion from 74.9 billion in 2020. In a similar period, net advances declined by 9% to Kshs. 40.1 billion from Kshs. 44.2 billion in the year 2021 and 2020 respectively (CBK, 2021). The non-performing loans were mainly affected by increased credit risk of default from various loan clients. A number of authors have attempted to assess factors that influence firm performance in MFIs. Research has shown that data analytics practices influence organization performance.

Various studies have been conducted on data analytics practices and organization performance in various parts of the world. For instance; In Pakistan, Azam and Ahmad (2023) conducted a survey on adoption of big data analytics for sustainability of library services in academic libraries of Pakistan. Opara and Sunday, (2022) studied big data: descriptive analytics and performance of commercial banks in Port Harcourt, Rivers State, Nigeria. Odula and Chege (2023) investigated data analytics and organizational performance of Kenya Civil Aviation Authority. However, these studies failed to show the influence of user Experience Analytics and IT Cost Analytics on performance of micro-lending institutions in Nairobi County, Kenya. To fill the highlighted gaps, the current study sought to determine the influence of data analytics practices and performance of micro-lending institutions in Nairobi County, Kenya

Specific Objectives

The study was guided by the following specific objectives

   i.   To assess the influence of user Experience Analytics on performance of micro-lending institutions in Nairobi County, Kenya

   ii.   To establish the influence of IT Cost Analytics on performance of micro-lending institutions in Nairobi County, Kenya

LITERATURE REVIEW

Theoretical Review

Technology Acceptance Model

Technology Acceptance Model (TAM) was developed by Davis (1989), it predicts the use and acceptance of information systems and technology by individual users. The model aim is to envisage the tool acceptability and to determine the changes that can be made to the system so that it can be accepted by users. According to the model two factors determine the acceptability of the information system; perceived usefulness (PU) and perceived ease of use (PEOU). PU can be referred to as the extent to which an individual believes that using a system can bring about good results. PEOU is the extent to which an individual believe that system usage is effortless. PU and PEOU are seen as varied dimensions. According to Marangunić and Granić (2019) TAM proposes that information system use is ascertained by behavioral intention, further behavioral intention is ascertained by the attitude of an individual towards the system and utility perception. A person's attitude does not only determine system usage but it also determines the effect on performance. Though an employee may be resistant to the information system, there is a chance that he/she may use it if they perceive it will improve their performance (Fishbein, & Ajzen, 2020). TAM assumes that there is a relationship between PU and PEOU. Since the two offers almost the same features, an individual would adopt the one that is easy to use.

The technology acceptance model theory is relevant as it specifies behavioral beliefs, perceived usefulness and perceived ease of use, as determinants of attitude towards behavioral intentions and IT usage behavior. In TAM, behavioral intention to use, leads to actual IT usage behavior. Behavioral intention is determined jointly by attitude and perceived usefulness, where perceived usefulness also affects attitude directly (Fernando, Chidambaram & Wahyuni, 2018). This study used Technology Acceptance Model to assess the influence of user Experience Analytics on performance of micro-lending institutions in Nairobi County, Kenya.
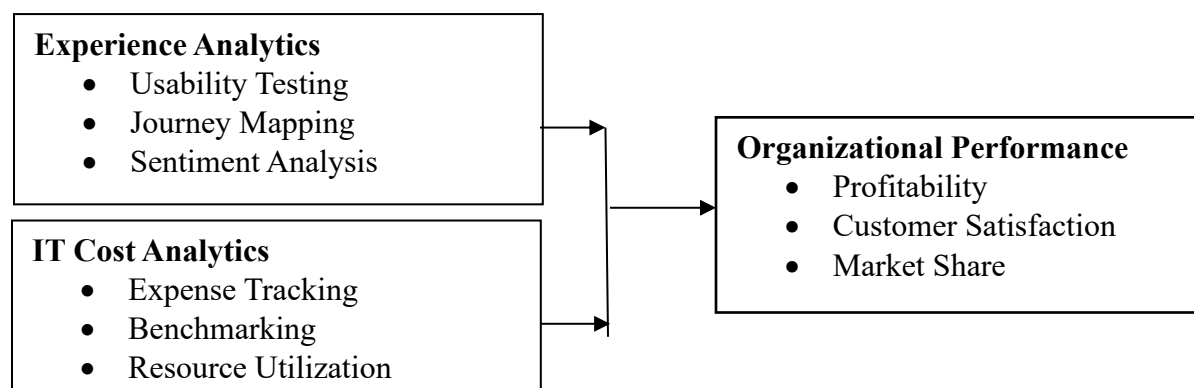
Resource Dependency Theory

The theory was coined by Pugh and Hickson (1997). They tried to explain organizations with regard to their interdependence with the community. Some scholars have argued that resource provision improves the organizational functioning, the performance of a firm and its survival (Daily et al, 2018). Organizations depend on information technology resources for various aspects of their operations, ranging from infrastructure and software to data management and security. The Resource Dependency Theory suggests that organizations strategically manage these dependencies to ensure access to necessary resources while controlling costs. IT Cost Analytics, within this framework, becomes a tool for understanding and optimizing the costs associated with IT resources (Henry, 2019). Resource Dependency Theory highlights the importance of relationships between organizations and their external environment. In the context of IT Cost Analytics, this involves understanding the relationships with IT vendors, service providers, and other stakeholders.

Analyzing IT costs becomes crucial for organizations to negotiate favorable terms, optimize spending, and enhance the efficiency of their IT-related activities.

Resource Dependency Theory suggests that organizations actively manage their dependencies to control costs and improve efficiency. IT Cost Analytics provides a mechanism for organizations to analyze their IT expenditures, identify cost-saving opportunities, and optimize resource allocation. This aligns with the theory's emphasis on managing dependencies to enhance organizational effectiveness. The Resource Dependency Theory implies that organizations make strategic decisions based on their dependencies and the resources available. In the context of IT Cost Analytics, organizations use data-driven insights to make informed decisions about IT investments, cost reduction strategies, and resource allocation. This strategic decision-making aligns with the theory's perspective on managing dependencies for competitive advantage (Wang & Ali, 2021). Resource Dependency Theory was used in this study to establish the influence of IT Cost Analytics on performance of micro-lending institutions in Nairobi County, Kenya.

Conceptual Framework

A conceptual framework is a diagram that explains the relationship between dependent and independent variables. In this research, the dependent variable is performance of micro-lending institutions in Nairobi County, Kenya while the independent variables are user Experience Analytics and IT Cost Analytics

Experience Analytics
- Usability Testing
- Journey Mapping
- Sentiment Analysis

IT Cost Analytics
- Expense Tracking
- Benchmarking
- Resource Utilization

Organizational Performance
- Profitability
- Customer Satisfaction
- Market Share

    Independent Variable   **Dependent Variable**

Figure 2. 1: Conceptual Framework

User Experience Analytics

User Experience Analytics refers to the process of collecting, analyzing, and interpreting data related to users' interactions with digital products, services, or interfaces. The primary objective of User Experience (UX) Analytics is to gain insights into users' behaviors, preferences, and satisfaction levels to optimize and enhance the overall user experience. By leveraging quantitative and qualitative data, organizations can make informed decisions to improve usability, engagement, and user satisfaction with their digital offerings (Azam & Ahmad, 2023).

User experience analytics revolves around understanding and improving the interactions between users and digital platforms. In the micro-lending sector, this involves analyzing how customers navigate through digital interfaces, complete transactions, and engage with financial services. By employing user experience analytics, micro-lending institutions can enhance their online platforms, streamline application processes, and tailor services to meet the specific needs of their clientele. A positive user experience not only fosters customer satisfaction but also contributes to

increased customer retention and loyalty, making it a crucial aspect of data analytics practices for micro-lending institutions seeking to stay competitive in the digital era (Azam, & Ahmad, 2023).

IT Cost Analytics

IT Cost Analytics refers to the systematic analysis of information technology (IT) expenses within an organization. This analytical approach involves collecting, processing, and interpreting data related to various aspects of IT expenditures to gain insights into cost structures, resource allocations, and overall efficiency. The primary goal of IT Cost Analytics is to help organizations optimize their IT spending, enhance cost-effectiveness, and align IT investments with business objectives (Aljumah, *et al*, 2021).

IT cost analytics involves the examination and optimization of IT-related expenses within an organization. In the context of micro-lending institutions, this includes analyzing the costs associated with maintaining and upgrading technological infrastructure, software solutions, and cybersecurity measures. Through IT cost analytics, institutions can identify areas for cost reduction, enhance resource allocation, and ensure that IT investments align with business objectives. This component of data analytics practices is crucial for maintaining financial sustainability, especially for micro-lenders operating in resource-constrained environments where optimizing IT expenditures can positively impact overall operational efficiency and profitability (Ali, *et al*, 2020).

Empirical Review

User Experience Analytics and organizational performance

Azam and Ahmad (2023) conducted a survey on adoption of big data analytics for sustainability of library services in academic libraries of Pakistan. This study aims to measure the adoption of big data analytics (BDA) to achieve sustainability in services being offered in university libraries in Pakistan. In total, 246 university library professionals were surveyed using a questionnaire consisting of UTAUT factors. The gathered data were analyzed using partial least structural equation modeling (PLS-SEM). The results showed that performance expectancy (PE), effort expectancy (EE) and social influence (SI) significantly impacted the behavioral intention (BI) to adopt BDA. Facilitating conditions (FCs) have a statistically significant influence on the adoption of big data in libraries, while BDA has a statistical influence on the sustainability of library services (SLS).

Wang and Ali (2021) explored big data use to predict supply chain effectiveness in Chinese organizations: a moderated mediated model link. The aim of the study was to predict the direct and indirect link between big data use (BDU) and supply chain effectiveness (SCE). Furthermore, we pursue to recognize information sharing as a moderator in BDU-SCA linkage. Therefore, we hired 321 Chinese SMEs entrepreneurs/executives through a survey and tested the framework in Mplus. The outcomes illustrate that BDU is not directly linked to SCE but supply chain agility) SCA and indirectly (via SCA) related to SCE. Moreover, information-sharing moderates the BDU-SCA association. Finally, we recorded research implications.

Mwadime (2022) investigated the role of user experience research in product strategy in selected technology companies in Kenya. This study was carried out with the main purpose of examining the role played by user experience research (UXR) in determining product strategy for selected technology companies in Kenya. Data was collected using a structured questionnaire. he research findings confirmed that there are UXR methods that have been used by companies to inform their product strategy and include: UXR reporting and presentation which was leading, followed by planning for UXR, then types of user research methods with task analysis and usability testing

following .Average score suggested that the various outlined independent indicators tied to UXR influence the product strategy, which in turn gives the tech firms a competitive advantage. Average score suggested that the various outlined independent indicators tied to UXR influence the product strategy, which in turn gives the tech firms a competitive advantage.

Hemlata (2017) carried out a study on cloud computing usage and its effect on organizational performance. The main objective of the study was to assess the impact of cloud computing usage on business performance, this article presents an integrative research model that links, environmental, organizational and technological capability constructs. To fill a literature gap, the study focuses on post adoption stages, i.e., actual usage and value creation, by surveying 403 manufacturing firms in India. The results show that business, human and technological capital, change management, organizational culture, and regulatory and supplier support are all vital antecedents of cloud computing usage, with firm size moderating actual usage and performance.

IT Cost Analytics and organizational performance

Aljumah, *et al* (2021) did a study on organizational performance and capabilities to analyze big data: do the ambidexterity and business value of big data analytics matter? The aim of the study is to examine the impact of the big data analytics capabilities (BDAC) on the organizational performance. The study also examines the mediating role of ambidexterity and the moderating role of business value of big data (BVBD) analytics in the relationship between the big data analytics capabilities and the organizational performance. This study collected primary data based on a questionnaire survey among the large manufacturing firms operating in UAE. A sample of 295 was used for final data analysis. The big data analysis (BDA) scalability is supported by the findings on the performance of firm and its determinants such as system, value of business and quality of information. The roles of business value as a moderator and ambidexterity as mediator are found significant. The results reveal that there is a need for managers to consider the business value and quality dynamics as crucial strategic objectives to achieve high performance of the firm (Henry, 2019).

Ghorpade and Iyer (2021) studied the impacts and challenges of cost-effective approaches using hybrid cloud infrastructure model in business analytics. This study focuses on the discussion about the cost-effective method using cloud infrastructure model for building and management of on-premise with the off-premise cloud service provider in business analytics. This chapter also elaborates the methodology undertaken and design considerations for implementation of cloud infrastructure with non-virtualized and on-premise infrastructure environment. The experiment using YGCIS (YG-cloud infrastructure solution) methodology is built for business analytics platform where infrastructure and its resources play a vital role. The cost-effective approach for total cost ownership (TCO) is implemented using YGCCS (YG-cost computing solution) framework. Thus, the solution obtained after implementing the above frameworks increases ROI % and reduces the TCO, impacting the business analytics needs.

Panda (2021) conducted research on strategic IT-business alignment capability and organizational performance: roles of organizational agility and environmental factors. This study aims to test a model in which the effect of strategic information technology (IT)-business alignment capability (hereafter referred to as "strategic alignment") on organizational performance is examined via the mediating role of organizational agility [studied as operational adjustment agility (OAA) and market capitalizing agility (MCA)] along with the moderating influence of environmental uncertainty.

Chornous and Gura (2020) carried out a study on integration of information systems for predictive workforce Analytics: Models, synergy, security of entrepreneurship. This study deals with issues of HCM optimization based on the models of predictive workforce analytics (WFA) and Business

Intelligence (BI). The main trends in the implementation of predictive WFA in the world and in Ukraine, as well as the need to protect business data for security of entrepreneurship and the tasks of predictive analysis in the context of proactive HCM were examined. Some models of effective integration of information systems for predictive WFA were proposed, their advantages and disadvantages were analyzed. These models combine ERP, HCM, BI, Predictive Analytics, and security systems. As an example, integration of HCM system, the analytics platform (IBM SPSS Modeler), BI system (IBM Planning Analytics), and security platform (IBM QRadar Security Intelligence Platform) for predicting the employee attrition was shown. This integration provides a cycle 'prediction – planning – performance review – causal analysis' to support protected data-driven decision making in proactive HCM The results of the research support ensuring the effective management of all spectrum of risks associated with the collection, storage and use of data.

RESEARCH METHODOLOGY

This study used descriptive research design which involved gathering of data that describes events then organizing, tabulating depicting and describing the data. This study was conducted in Nairobi County, Kenya. The Kenyan financial system incorporates fourteen MFIs that operate under close regulations of the CBK since they deal with accepting deposits and lending to citizens (CBK, 2021). The unit of analysis was therefore the 14 Microfinance Institutions while the unit of observation was 126 management employees working in these Microfinance Institutions. In this study, due to the small size of the study population, the census sampling approach was used hence, the sample size for the study was 126 respondents. This research used a questionnaire to collect primary data. The pilot study was carried out on 13 respondents who are sufficient based on Glesne (2015) who stated that 10% of the population is adequate to constitute the pilot test size. This study gathered both quantitative and qualitative data. Qualitative data analyzed by use of content analysis. Quantitative data was coded then analyzed using Statistical Package for Social Sciences (SPSS) computer software version 28. Descriptive statistics were used to analyze the data in frequency distributions and percentages which were presented in tables and figures. The study also adopted multiple regression analysis to test the relationships between the variables.

RESEARCH FINDINGS AND DISCUSSION

The revised questionnaire was issued to the selected study sample of 113 management employees working in 14 Microfinance Institutions in Nairobi County, Kenya. The returned questionnaires were crosschecked for accuracy and completeness and 96 were found to be valid and reliable and could be used for further analysis and reporting. The returned questionnaires formed a response rate of 85%. As explained by Sekaran and Bougie (2016), a response rate of 50% and above is adequate for analysis, 60% and above is good while that of 70% and above is excellent. Therefore, the response rate of 85% was excellent for further analysis and reporting.

Descriptive Analysis

In this section the study presents findings on Likert scale questions where respondents were asked to indicate their level of agreement with various statements that relate with the influence of data analytics practices and performance of micro-lending institutions in Nairobi County, Kenya. They used a 5-point Likert scale where 1-strongly disagree, 2-disagree, 3-moderate, 4-agree, 5-strongly agree. The means and standard deviations were used to interpret the findings where a mean value of 1-1.4 was strongly disagree, 1.5-2.4 disagree, 2.5-3.4 neutral, 3.5-4.4 agree and 4.5-5 strongly agree. Standard deviation greater than 2 was considered large meaning responses were widely spread out and not tightly clustered around the mean. In other words, there was a lot of variability in the responses, which may suggest that participants had different interpretations or perceptions of the questions being asked.

User Experience Analytics

The second specific objective was to assess the influence of user Experience Analytics on performance of micro-lending institutions in Nairobi County, Kenya. Respondents were therefore asked to indicate their level of agreement on the statements relating to user Experience Analytics and performance of micro-lending institutions in Nairobi County, Kenya. Table 1 presents the summary of the findings obtained.

Table 1: Descriptive Analysis on User Experience Analytics

Statement	Mean	Std. Dev.
The organization utilizes user experience analytics to understand and improve the overall satisfaction of its customers.	3.781	1.082
User feedback collected through analytics is actively analyzed to identify areas for enhancing the usability of digital platforms.	3.788	0.648
The organization effectively tracks and measures user engagement metrics to assess the success of its online interactions.	3.814	0.187
User experience analytics play a key role in identifying pain points and friction in customer journeys across digital touchpoints.	3.926	0.649
The organization leverages analytics to continuously monitor and improve the accessibility of its digital interfaces for all users.	3.801	0.734
Insights from user experience analytics are systematically incorporated into the design and development processes of digital products.	3.876	0.969
The organization uses A/B testing and other analytics-driven approaches to optimize user interfaces for better performance.	3.917	0.821
Aggregate Score	**3.843**	**0.727**

The findings show that the respondents agreed on average that the organization utilizes user experience analytics to understand and improve the overall satisfaction of its customers (M= 3.781, SD= 1.082); that user feedback collected through analytics is actively analyzed to identify areas for enhancing the usability of digital platforms (M= 3.788, SD= 0.648); and that the organization effectively tracks and measures user engagement metrics to assess the success of its online interactions (M= 3.814, SD= 0.187). They were further in agreement that user experience analytics play a key role in identifying pain points and friction in customer journeys across digital touchpoints (M= 3.926, SD= 0.649); that the organization leverages analytics to continuously monitor and improve the accessibility of its digital interfaces for all users (M= 3.801, SD= 0.734); that insights from user experience analytics are systematically incorporated into the design and development processes of digital products (M= 3.876, SD= 0.969); and that the organization uses A/B testing and other analytics-driven approaches to optimize user interfaces for better performance (M= 3.917, SD= 0.821).

The findings show that the aggregate mean score is 3.843 (SD= 0.727) suggesting that they agreed on average that user experience analytics affects performance of micro-lending institutions in Nairobi County, Kenya. This agrees with Azam and Ahmad's (2023) survey on the adoption of big data analytics in academic libraries found that factors such as performance expectancy, effort expectancy, and social influence significantly impacted the behavioral intention to adopt big data analytics, which aligns with the notion that user experience analytics influences organizational

performance. Additionally, Mwadime's (2022) investigation into the role of user experience research in product strategy in technology companies underscores the importance of understanding user experience in informing strategic decisions and product development, which can ultimately impact organizational performance. These studies collectively highlight the significance of user experience analytics in enhancing organizational effectiveness and achieving strategic objectives within various organizational contexts.

IT Cost Analytics

The fourth objective of the study was to establish the influence of IT Cost Analytics on performance of micro-lending institutions in Nairobi County, Kenya. Respondents were therefore requested to indicate their level of agreement on the statements relating to IT Cost Analytics and performance of micro-lending institutions in Nairobi County, Kenya. Table 2 presents summary of the findings obtained.

Table 2: Descriptive Analysis of IT Cost Analytics

Statement	Mean	Std. Dev.
The organization actively uses IT cost analytics to monitor and manage expenses related to technology infrastructure and services.	3.881	0.357
The organization actively uses IT cost analytics to monitor and manage expenses related to technology infrastructure and services.	4.001	0.773
The organization effectively utilizes IT cost analytics to identify cost-saving opportunities without compromising the quality of IT services.	3.96	0.274
IT cost analytics tools are used to track the return on investment (ROI) for major technology projects and initiatives.	3.941	0.721
The organization regularly analyzes the total cost of ownership (TCO) of IT assets to make informed decisions about upgrades, replacements, or retirements.	3.939	0.073
The organization employs IT cost analytics to assess the cost-effectiveness of cloud services versus on-premises solutions.	3.936	0.136
Cost analytics in IT is integrated into the decision-making process, ensuring that technology investments align with overall business objectives.	3.89	0.223
IT cost analytics tools provide valuable insights into the allocation of resources, helping optimize spending across various technology initiatives.	3.83	0.246
Aggregate Score	**3.922**	**0.350**

The findings show that the respondents were in agreement that the organization actively uses IT cost analytics to monitor and manage expenses related to technology infrastructure and services (M= 3.881, SD= 0.357); that the organization actively uses IT cost analytics to monitor and manage expenses related to technology infrastructure and services (M= 4.001, SD= 0.773); and that the organization effectively utilizes IT cost analytics to identify cost-saving opportunities without compromising the quality of IT services (M= 3.96, SD= 0.274). They also agreed that IT cost analytics tools are used to track the return on investment (ROI) for major technology projects and initiatives (M= 3.941, SD= 0.721); that the organization regularly analyzes the total cost of ownership (TCO) of IT assets to make informed decisions about upgrades, replacements, or

retirements (M= 3.939, SD= 0.073); and that the organization employs IT cost analytics to assess the cost-effectiveness of cloud services versus on-premises solutions (M= 3.936, SD= 0.136). They further agreed that cost analytics in IT is integrated into the decision-making process, ensuring that technology investments align with overall business objectives (M= 3.890, SD= 0.223); and that IT cost analytics tools provide valuable insights into the allocation of resources, helping optimize spending across various technology initiatives. (M= 3.83, SD= 0.246).

The aggregate mean score of 3.922 (SD= 0.350) show that the respondents agreed on average that IT Cost Analytics influences performance of micro-lending institutions in Nairobi County, Kenya. The findings agree with the study by Aljumah et al. (2021) who explored the impact of big data analytics capabilities on organizational performance, highlighting the role of various factors such as ambidexterity and business value in mediating and moderating this relationship. Their findings suggest that effective IT cost analytics contributes to organizational performance by enhancing strategic alignment and generating valuable insights for decision-making. Furthermore, Chornous and Gura's (2020) study on the integration of information systems for predictive workforce analytics emphasizes the importance of leveraging analytics capabilities to optimize human capital management and drive organizational performance. These studies provide empirical evidence supporting the notion that IT cost analytics plays a crucial role in enhancing the performance outcomes of micro-lending institutions in Nairobi County, Kenya, by facilitating informed decision-making and resource allocation.

Performance of Micro-Lending Institutions

The main objective of the study was to determine the influence of data analytics practices and performance of micro-lending institutions in Nairobi County, Kenya. Respondents were therefore asked to indicate their level of agreement with statements on performance of micro-lending institutions in Nairobi County, Kenya. Table 3 presents summary of the findings obtained,

Table 4. 1: Descriptive Analysis on Performance of Micro-Lending Institutions

Statement	Mean	Std. Dev.
The profitability of our organization has been improving over the years	3.907	0.628
Am satisfied with the general performance of our organization	3.997	0.294
The rate of non-performing loans has been declining over the years	3.921	0.89
There are few complaints from customers concerning the quality of services delivered	3.854	0.654
The organization is in a position to cater for its bills as they become due	3.843	0.231
Aggregate Score	**3.904**	**0.539**

The findings show that the respondents agreed on average that the profitability of their organization has been improving over the years (M= 3.907, SD= 0.628); that they are satisfied with the general performance of their organization (M= 3.997, SD= 0.294); and that the rate of non-performing loans has been declining over the years (M= 3.921, SD= 0.89). They also agreed that there are few complaints from customers concerning the quality of services delivered (M= 3.854, SD= 0.654); and that the organization is in a position to cater for its bills as they become due (M= 3.843, SD= 0.231).

The findings suggest that respondents generally perceive positive trends in organizational performance indicators such as profitability, general performance, non-performing loans, customer complaints, and financial stability. These perceptions align with empirical research in the literature. Sue et al. (2022) investigated the impact of big data analytics capabilities on organizational performance and found that effective utilization of data analytics contributes to improved organizational outcomes, including profitability and overall performance. Additionally, Odula and Chege (2023) examined the relationship between data analytics and organizational performance within the context of the Kenya Civil Aviation Authority (KCAA), highlighting the positive effects of descriptive analytics on various performance metrics such as customer satisfaction and economic growth. These studies provide empirical evidence supporting the notion that data analytics practices contribute to positive organizational performance outcomes, including financial stability, customer satisfaction, and overall performance.

Correlation Analysis

Table 3: Correlation Analysis

		Performance	Experience Analytics	IT Cost Analytics
Performance of MFIs	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	96		
Experience Analytics	Pearson Correlation	.750**	1	
	Sig. (2-tailed)	.000		
	N	96	96	
IT Cost Analytics	Pearson Correlation	.789**	.156	1
	Sig. (2-tailed)	.000	.052	
	N	96	96	96

Performance exhibits a strong positive correlation with experience analytics (r = 0.750, p < 0.05), suggesting that as organizations enhance their user experience analytics capabilities, their performance tends to increase. This is consistent with the research of Azam and Ahmad (2023), who found that factors such as performance expectancy and effort expectancy significantly influence the adoption of big data analytics and ultimately contribute to organizational performance.

Also, IT cost analytics demonstrates a strong positive correlation with the performance of micro-lending institutions (r = 0.789, p < 0.05), indicating that as organizations effectively manage and analyze IT costs, their performance tends to increase. This correlation underscores the importance of cost management and optimization in driving organizational success. Aljumah et al.'s (2021) research on big data analytics capabilities and organizational performance aligns with this correlation, highlighting the role of effective IT cost analytics in enhancing strategic alignment and generating valuable insights for decision-making. By understanding and optimizing IT costs, micro-lending institutions can enhance operational efficiency, allocate resources more effectively, and ultimately achieve better performance outcomes.

Multiple Regression Analysis

Model Summary

The study used model summary to test the amount of variation in the dependent variable as a result of changes in the independent variables. The study tested the amount of variation in performance

of micro-lending institutions in Nairobi County, Kenya as a result of changes in experience analytics, and IT cost analytics.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.843[a]	.711	.701	.44461

a. Predictors: (Constant), IT Cost Analytics, Experience Analytics

The findings underscore the model's significant predictive capacity for the performance of micro-lending institutions in Nairobi County, Kenya. Comprised of key predictors including experience analytics, and IT cost analytics, the model exhibits a substantial explanatory power, with an R^2 value of 0.711. This indicates that approximately 71.1% of the variance in the performance of micro-lending institutions can be attributed to these predictors. Moreover, the adjusted R^2 value of 0.701, accounting for the model's complexity and sample size, reinforces its reliability in predicting performance outcomes. Generally, these findings suggest that the model, these findings indicate that the model, incorporating experience analytics, and IT cost analytics provides a reasonably good fit for predicting performance of micro-lending institutions within the context of the study.

Analysis of Variance

The study used analysis of variance to test the significance of the model Significance was tested at 95% confidence interval.

Table 5: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	19.405	4	4.851	16.768	.000[b]
1	Residual	26.328	91	.289		
	Total	45.733	95			

a. Dependent Variable: Performance of micro-lending institutions in Nairobi County, Kenya

b. Predictors: (Constant), IT Cost Analytics, Experience Analytics

The ANOVA results reveal that the regression model, consisting of predictors including experience analytics, and IT cost analytics, significantly explains the variance in the dependent variable, Performance of micro-lending institutions in Nairobi County, Kenya. The regression model accounts for a substantial portion of the total variance, as indicated by the significant F-statistic of 73.194 (p < .05). This suggests that the model's inclusion of the selected predictors contributes significantly to explaining the variability in performance of micro-lending institutions in Nairobi County, Kenya scores. These findings suggest that the regression model is highly significant in predicting performance of micro-lending institutions in Nairobi County, Kenya based on the selected predictors.

Coefficients of Study Variables

The coefficients show the influence of each predictor variable on dependent variable.

Table 6: Beta Coefficients of Study Variables

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.280	.240		1.167	.245
Experience Analytics	.273	.087	.273	3.138	.002
IT Cost Analytics	.292	.082	.464	3.561	.000

a. Dependent Variable: Performance of micro-lending institutions in Nairobi County, Kenya

From the coefficients in Table 6, the following regression model was fitted;

$$Y = 0.280 + 0.273 \, X_1 + 0.422 \, X_2$$

Experience Analytics also emerges as a significant predictor ($\beta = 0.273$, $p = 0.002$) of micro-lending institution performance. This suggests that enhancing user experience analytics practices is associated with improved performance outcomes. Experience analytics focuses on understanding and optimizing user interactions with the institution's services or products, thereby enhancing customer satisfaction and loyalty. This finding resonates with Azam and Ahmad's (2023) research on big data analytics adoption in academic libraries, highlighting the importance of user experience factors in driving organizational performance improvements.

Lastly, IT Cost Analytics emerges as a highly influential predictor ($\beta = 0.292$, $p < 0.05$) of micro-lending institution performance. This indicates that effectively managing IT costs is crucial for achieving higher performance outcomes. IT cost analytics involves analyzing and optimizing IT expenditure to ensure efficient resource allocation and alignment with organizational objectives. This finding underscores the importance of cost-effective IT strategies in driving organizational success, aligning with Aljumah et al.'s (2021) research on big data analytics capabilities and organizational performance enhancement.

Conclusions

For the first research question, "How does User Experience Analytics influence performance of micro-lending institutions in Nairobi County, Kenya?", the study investigated the relationship between User Experience Analytics practices and the performance of micro-lending institutions. The findings reveal a significant influence of User Experience Analytics on performance, as indicated by respondents' agreement with the organization's utilization of analytics for customer satisfaction improvement and product development. Hence, it is concluded that effective User Experience Analytics positively impacts the performance of micro-lending institutions in Nairobi County, Kenya.

For the second research question, "How does IT Cost Analytics influence performance of micro-lending institutions in Nairobi County, Kenya?", the study examined the relationship between IT Cost Analytics practices and the performance of micro-lending institutions. The findings indicate a significant influence of IT Cost Analytics on performance, with respondents acknowledging its role in monitoring expenses, identifying cost-saving opportunities, and aligning technology investments with business objectives. Hence, it is concluded that effective IT Cost Analytics positively impacts the performance of micro-lending institutions in Nairobi County, Kenya.

Recommendations

Regarding User Experience Analytics, the study highlights the significant role of user-centric approaches in driving performance enhancements for micro-lending institutions in Nairobi County, Kenya. To maximize the benefits of User Experience Analytics, it is recommended that institutions adopt a comprehensive approach to analyzing user feedback and behavior to identify pain points and areas for improvement across digital touchpoints. Moreover, integrating insights from User Experience Analytics into the design and development processes of digital products and platforms can lead to more user-friendly interfaces and enhanced customer satisfaction. By prioritizing User Experience Analytics and implementing these recommendations, micro-lending institutions can create a seamless and engaging user experience, thereby contributing to improved performance outcomes and customer retention.

For IT Cost Analytics, the study emphasizes the critical role of effective cost management practices in driving performance enhancements for micro-lending institutions in Nairobi County, Kenya. To optimize the impact of IT Cost Analytics, institutions should prioritize the monitoring and management of technology-related expenses, identify and capitalize on cost-saving opportunities, and align IT investments with overarching business objectives. Furthermore, integrating cost analytics into the decision-making process and regularly assessing the return on investment for technology projects can help ensure the efficient allocation of resources. By focusing on IT Cost Analytics and implementing these recommendations, micro-lending institutions can enhance financial sustainability, minimize operational costs, and improve overall performance and profitability.

Suggestions for Future Studies

For future studies, conducting comparative analyses across different types of micro-lending institutions or within different geographical regions could offer valuable insights into the contextual factors influencing the effectiveness of data analytics practices. Furthermore, qualitative research methodologies, such as interviews or focus groups with key stakeholders, could provide deeper insights into the underlying mechanisms through which data analytics practices influence performance outcomes. Lastly, exploring potential moderating or mediating factors, such as organizational culture, leadership styles, or regulatory environments, could enhance our understanding of the complex relationships between data analytics practices and performance in the micro-lending sector.

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