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DOCTORAL UNIT OF RESEARCH  
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UNITE DE RECHERCHE ET DE  
FORMATION  
DOCTORALE EN SCIENCES EDUCATIVES  
ET INGENIERIE EDUCATIVE

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CURRICULA ET EVALUATION

**EDUCATIONAL MANAGEMENT INFORMATION  
SYSTEM ON ADMINISTRATIVE EFFECTIVENESS IN  
SCHOOL (SELECTED SECONDARY SCHOOLS IN  
MFOUNDI DIVISION) YAOUNDE, CAMEROON.**

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by

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The undersigned certify that they have read and hereby recommend for acceptance by the University of Yaoundé I, a dissertation entitled: “**Educational Management Information System on Administrative Effectiveness in School (Selected Secondary Schools in Mfoundi Division).**”, in partial fulfilment of the requirements for the award of a Master of Education Degree in Educational Management from the University of Yaoundé I

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To my mother's Bawak Cecilia Enow,

And

Mrs Margarette Orock

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## ABBREVIATIONS AND ACRONYMS

AFDB	African Development Bank
AI	Artificial Intelligence
CSCW	Computer Supported Cooperative Work
DDDM	data-driven decision-making
EMIS	Educational Management Information System
ESDP	Education Sector Development Plan
FIS	Financial Information System
GPE	Global Partnership for Education
HRIS	Human resources information system
ICT	Information and Communication Technology
IH2EF	Institut des Hautes Études de l'Éducation et de la Formation
IIEP	The International Institute for Educational Planning
IITMS	Institute of Indian Technical and Management Studies
IS	Information System
IT	Information Technology
LMS	learning management systems
MIS	Management Information System
NEMIS	National Education Management Information System
NGO	Non-governmental Organisation
SDG4	Sustainable Development Goals
SIS	Student Information System
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organisation
XML	Extensible Markup Language

## ABSTRACT

The main purpose of this study was to investigate the Educational Management Information System (EMIS) on administrative effectiveness in School (selected secondary schools in Mfoundi Division). The concepts under investigation were Student Information System (SIS), Human Resource Information System (HRIS) and Financial Information System (FIS). The three research questions led the study, and three null hypotheses were tested. The study adopted the descriptive survey research based on a quantitative design and a Likert scale questionnaire was used to administer research questions to a sample of 123 respondents, who were 30 principals, 63 vice principals, 30 bursars in the Mfoundi Division. The instrument was validated by three experts and its reliability was determined using Cronbach alpha method which yielded a high reliability coefficient value 0.988. The research was guided by the Innovation Diffusion Theory and the Lazy User Model. Data collected were analysed using frequency, percentage, mean ratings and standard deviation for answering the research questions, while the linear regression was used to test the hypotheses. Findings indicated that the Student Information System, Human Resource Information System and Financial Information System have a significant impact on administrative effectiveness in Education (selected secondary schools) in Mfoundi Division. It was concluded that there is a significant relationship between EMIS and administrative effectiveness in Education (selected secondary schools) in Mfoundi Division. Based on the findings, it was recommended by the researcher that the Ministry of Secondary Education offer school administrators and staff regular support for EMIS through a permanent expert who can assist with EMIS.

**Keywords : Education, Information, Education Management Information System, Administrator.**

## RESUME

L'objectif principal de cette étude était d'examiner le Système d'information de gestion de l'éducation (EMIS) sur l'efficacité administrative dans les (écoles secondaires sélectionnées dans la division de Mfoundi). Les concepts étudiés étaient le Système d'information sur les étudiants (SIS), le Système d'information sur les ressources humaines (HRIS) et le Système d'information financière (FIS). Les trois questions de recherche ont guidé l'étude et trois hypothèses nulles ont été testées. L'étude a adopté la recherche par sondage descriptive basée sur une conception quantitative et un questionnaire à échelle de Likert a été utilisé pour administrer les questions de recherche à un échantillon de 123 répondants, qui étaient 30 directeurs, 63 directeurs adjoints, 30 économistes dans la division de Mfoundi. L'instrument a été validé par trois experts et sa fiabilité a été déterminée à l'aide de la méthode alpha de Cronbach qui a donné une valeur de coefficient de fiabilité élevée de 0,988. La recherche a été guidée par la théorie de la diffusion de l'innovation et le modèle de l'utilisateur paresseux. Les données recueillies ont été analysées à l'aide de la fréquence, du pourcentage, des notes moyennes et de l'écart type pour répondre aux questions de recherche, tandis que la régression linéaire a été utilisée pour tester les hypothèses. Les résultats ont montré que le Système d'information sur les élèves, le Système d'information sur les ressources humaines et le Système d'information financière ont un impact significatif sur l'efficacité administrative du système éducatif (établissements secondaires sélectionnés) dans le département du Mfoundi. Il a été conclu qu'il existe une relation significative entre le SIGE et l'efficacité administrative du système éducatif (établissements secondaires sélectionnés) dans le département du Mfoundi. Sur la base de ces résultats, le chercheur a recommandé au ministère de l'Enseignement secondaire d'offrir aux administrateurs et au personnel des établissements scolaires un soutien régulier pour le SIGE par l'intermédiaire d'un expert permanent.

**Mots-clés** : Éducation, Information, Système d'information de gestion de l'éducation, Administrateur.

# CHAPTER ONE

## INTRODUCTION

An Educational Management Information System (EMIS) is a tool that collects, processes, and analyses data to improve decision-making and administrative effectiveness in schools. Its role in improving the education system has been well-documented in various contexts. For example, the World Bank emphasises the importance of EMIS in supporting evidence-based policy making and enhancing transparency in resource management (World Bank, 2021). EMIS is a transformative tool designed to improve administrative effectiveness in educational institutions. By leveraging technology for the systematic collection, processing, and analysis of data, EMIS enhances decision-making, resource management, and accountability (Adeyemi, 2019; Smith & Jones, 2020). In the context of Mfoundi Division in Cameroon, where challenges like data inaccuracies, inefficient reporting, and resource mismanagement prevail, the introduction of EMIS presents a timely and critical solution (Wemba, 2020).

The World Bank emphasises the role of EMIS in facilitating evidence-based policies and promoting transparency in education systems, underscoring its potential to address systemic inefficiencies (World Bank, 2021). Similarly, UNESCO identifies EMIS as a cornerstone of modern educational administration, streamlining essential tasks such as student enrolment, attendance tracking, and staff management (UNESCO, 2022). According to the International Institute for Educational Planning, EMIS empowers school administrators with real-time data, enabling better planning and evaluation while promoting accountability (IIEP, 2020).

However, successful implementation in Mfoundi requires overcoming challenges such as limited infrastructure, as noted by Djirackor, who points to electricity and internet connectivity issues in African regions (Djirackor, 2020). Additionally, the need for capacity building is emphasised by the Commonwealth of Learning, which stresses the importance of training educators and administrators to fully utilise the system (COL, 2021). By addressing these challenges through pilot programs and partnerships with organisations like the Global Partnership for Education (GPE, 2023), Mfoundi schools could unlock the full potential of EMIS, paving the way for more efficient and impactful educational administration.

## Historical Background

The concept of Educational Management Information Systems (EMIS) began to take shape in the mid-20th century as governments worldwide recognised the need for systematic data collection to improve education planning and administration. These early systems were largely manual, designed to record essential metrics such as student enrolment, attendance, and basic school infrastructure data. Post-World War II reconstruction efforts prioritised education as a key component of socioeconomic development, prompting institutions like UNESCO to advocate for robust data systems (UNESCO, 2005). While technological limitations restricted their scalability and effectiveness, these initial systems marked the beginning of the global movement toward data-driven decision-making in education.

The 1980s and 1990s saw significant advancements in EMIS development as the rapid spread of computer technology revolutionised data processing. Governments began adopting computerised systems to manage educational data better and improve resource allocation. During this period, international organisations such as the World Bank played a crucial role in supporting EMIS initiatives in developing countries, funding projects aimed at addressing teacher shortages and overcrowded classrooms (World Bank, 1995). The International Institute for Educational Planning (IIEP) emphasised the importance of EMIS in enhancing transparency and accountability, highlighting its capacity to improve the monitoring of educational policies and programs (IIEP, 1998). By the end of the 1990s, there was a global consensus that reliable educational data was essential for effective management and policy formulation.

The 21st century brought a paradigm shift in the development and use of EMIS, driven by advancements in internet connectivity, data analytics, and cloud computing. Governments began integrating EMIS into broader digital initiatives to foster coordination across sectors. For instance, Kenya's National Education Management Information System (NEMIS) successfully streamlined student registration and resource allocation, resolving issues such as ghost enrolments (African Development Bank, 2019). Similarly, India's Digital India initiative incorporated EMIS to monitor school finances and performance in real time (World Bank, 2020). UNESCO championed the use of EMIS to support Sustainable Development Goal 4 (Quality Education), emphasising its role in tracking progress toward inclusive and equitable education (UNESCO, 2015). These modern systems further evolved to include features that

enabled stakeholder engagement, fostering collaboration between parents, teachers, and policymakers.

The adoption of EMIS in Cameroon is relatively recent but increasingly critical in addressing persistent challenges in the education sector. The Ministry of Education has acknowledged the role of EMIS in tackling issues such as high student-teacher ratios, inconsistent resource allocation, and outdated record-keeping methods. Pilot projects in regions like Mfoundi Division have demonstrated the feasibility of using EMIS to enhance administrative effectiveness and improve data accuracy (Ministry of Education, Cameroon, 2020). Despite its promise, the implementation of EMIS in Cameroon has faced barriers such as unreliable internet access and electricity, as noted by Djirackor in his study on infrastructure challenges in Sub-Saharan Africa (Djirackor, 2020). These challenges underscore the importance of capacity-building programs and partnerships to ensure the successful integration of EMIS into Cameroon's education system.

Looking ahead, the successful implementation of EMIS in Cameroon will require collaborative efforts between local stakeholders and international organisations. Partnerships with entities such as the Global Partnership for Education have already provided financial and technical support for scaling up EMIS projects in underserved areas (Global Partnership for Education, 2023). Additionally, lessons from other countries, such as Kenya and Rwanda, offer valuable insights into overcoming infrastructure limitations and maximising the impact of EMIS systems. By addressing these challenges and prioritising investments in technology, training, and stakeholder engagement, Cameroon can leverage EMIS to revolutionise its education system, ensuring efficient planning, equitable resource distribution, and improved educational outcomes.

### **Conceptual Background**

An Educational Management Information System (EMIS) is a comprehensive platform designed to collect, process, analyse, and disseminate data that aids in the management and administration of educational systems. UNESCO defines EMIS as an essential tool for educational planning, decision-making, and resource allocation (UNESCO, 2015). Its primary functions include tracking student enrolment, teacher deployment, infrastructure management, and financial allocation. The scope of EMIS extends beyond administrative purposes, encompassing monitoring educational outcomes and supporting evidence-based policymaking.

This system is recognised globally for its ability to create more structured and efficient educational environments.

The development of EMIS is grounded in theories of information management and systems thinking. Systems theory views education as an interconnected network of subsystems such as schools, teachers, and students requiring coordinated data to function optimally (Bertalanffy, 1968). EMIS integrates these subsystems by processing data inputs (e.g., student performance metrics) and generating actionable outputs (e.g., enrolment projections). Additionally, theories in information management emphasise the importance of data accuracy, timeliness, and accessibility for effective decision-making (Davenport, 1993; harvard.edu). By combining these theoretical frameworks, EMIS serves as a critical infrastructure for managing complex educational systems.

EMIS operates through structured data collection, processing, and reporting mechanisms. Data collection involves gathering information from schools regarding student demographics, attendance records, curriculum delivery, and resource utilisation. Advanced technologies, such as cloud computing and database management systems, facilitate the efficient storage and retrieval of this data (World Bank, 2020). Data analysis tools, including statistical software and artificial intelligence, are then used to identify trends and generate predictive insights. Reporting mechanisms ensure that this information reaches policymakers, school administrators, and other stakeholders in a timely and usable format. For example, Kenya's NEMIS provides real-time dashboards that enhance transparency and accountability (AfDB, 2019).

The adoption of EMIS has profound implications for the efficiency and effectiveness of educational systems worldwide. It enhances transparency by providing accurate, up-to-date records on financial expenditures and academic achievements. Furthermore, EMIS supports resource optimisation by identifying areas with urgent needs, such as schools facing overcrowding or teacher shortages (IIEP, 2020). Evidence-based policymaking is another key benefit, as real-time data enables governments to design targeted interventions and monitor their impact over time. EMIS is also instrumental in tracking progress toward international educational goals, including UNESCO's SDG 4 (Quality Education), which emphasises inclusivity and equity in learning (UNESCO, 2015).

Despite its benefits, the implementation of EMIS faces several challenges, particularly in developing regions like Cameroon. Infrastructure limitations, such as unreliable electricity and internet connectivity, hinder the seamless operation of EMIS in rural and underserved areas (Djirackor, 2020). Additionally, insufficient training and digital literacy among educators and administrators pose barriers to its effective use (COL, 2021). Financial constraints also affect the ability of governments to procure the necessary technology and develop robust data systems. Addressing these challenges requires collaborative efforts involving local stakeholders, international organisations, and private technology providers to ensure equitable access to EMIS resources.

In the respect of Mfoundi Division, Cameroon, EMIS presents a transformative opportunity to address systemic inefficiencies in educational management. With schools facing challenges such as high student-teacher ratios and outdated record-keeping practices, EMIS can streamline administrative processes and improve data accuracy (Ministry of Education, Cameroon, 2020). Pilot programs in the region have already demonstrated the feasibility of deploying EMIS to monitor enrolment trends and resource distribution. Furthermore, partnerships with organisations like the Global Partnership for Education provide critical financial and technical support to scale up these initiatives (GPE, 2023). By leveraging EMIS, Mfoundi schools can ensure effective planning, equitable resource allocation, and improved educational outcomes.

### **Theoretical Background**

Educational Management Information Systems (EMIS) are underpinned by principles of information management and systems theory. At its core, EMIS operates as a subsystem within the broader education sector, designed to provide data-driven insights for effective governance. Systems theory, pioneered by Bertalanffy (1968), posits that organisations consist of interdependent components that must work cohesively to achieve objectives (Bertalanffy, 1968; [systems-thinking.org](http://systems-thinking.org)). Within this framework, EMIS aligns individual schools, administrative units, and policymakers by collecting and processing data into actionable information. Information management theory, as described by Davenport (1993), emphasises the importance of accurate, timely, and accessible data in supporting decision-making (Davenport, 1993; [harvard.edu](http://harvard.edu)). Together, these theories provide the foundational structure for EMIS as a dynamic tool for managing educational systems.

The adoption of EMIS is deeply rooted in the concept of data-driven decision-making (DDDM), which has gained prominence in education management globally. DDDM involves using quantifiable data to inform decisions, replacing intuition or assumptions with evidence-based practices. For example, the World Bank emphasises that EMIS facilitates resource allocation by identifying underserved schools, optimising teacher distribution, and monitoring student outcomes (World Bank, 2020; [worldbank.org](http://worldbank.org)). In countries like Kenya, real-time data provided by NEMIS (National Education Management Information System) ensures transparency and equity in resource management (AfDB, 2019; [afdb.org](http://afdb.org)). This theoretical approach underscores EMIS's role in enhancing accountability and operational efficiency.

The theoretical grounding of EMIS also aligns with policy and governance frameworks, particularly those emphasising transparency, accountability, and equity. UNESCO's Global Education Monitoring Report highlights the role of EMIS in supporting Sustainable Development Goal 4 (SDG 4), which focuses on inclusive and equitable quality education (UNESCO, 2015; [unesco.org](http://unesco.org)). Governance theories propose that robust data systems enhance institutional accountability by enabling policymakers to track performance metrics, evaluate programs, and identify systemic inefficiencies (IIEP, 2020; [iiep.unesco.org](http://iiep.unesco.org)). For instance, India's EMIS contributes to government initiatives by monitoring school financing and outcomes, ensuring compliance with national education policies (UNESCO, 2022; [unesco.org](http://unesco.org)).

The integration of technology into EMIS is supported by innovation diffusion theory, which examines how new ideas and technologies spread within a society (Rogers, 1962; [rogers-theory.com](http://rogers-theory.com)). Cloud computing, big data analytics, and artificial intelligence (AI) have revolutionised the capabilities of EMIS, making it more adaptable and scalable. Rwanda's EMIS, for example, integrates AI-driven analytics to improve resource planning and monitor teacher deployment (UNESCO Institute for Statistics, 2021; [uis.unesco.org](http://uis.unesco.org)). This intersection of technology and management theory highlights how innovations in data storage, processing, and visualisation are reshaping education administration.

Another theoretical perspective underpinning EMIS is the theory of organisational change, which addresses how institutions adapt to new systems and processes. Kotter's eight-step change model emphasises the need for leadership, stakeholder engagement, and capacity building when introducing innovations like EMIS (Kotter, 1996; [kotterchange.org](http://kotterchange.org)). In Cameroon, the Ministry of Education has initiated training programs for educators and

administrators to build digital literacy and ensure the effective use of EMIS (Ministry of Education, Cameroon, 2020; [mineduc.gov.cm](http://mineduc.gov.cm)). Capacity-building initiatives are critical for fostering a culture of data use, ensuring that EMIS is fully embedded within the operational framework of schools.

The implementation of EMIS is closely tied to theories of equity and inclusivity, which advocate for the fair distribution of resources and opportunities. By disaggregating data on gender, socioeconomic background, and geographic location, EMIS helps identify disparities and design targeted interventions. For instance, Uganda's EMIS has been instrumental in reducing gender disparities in school enrolment by tracking progress at the district level (IIEP, 2020; [iiep.unesco.org](http://iiep.unesco.org)). In Mfoundi Division, Cameroon, similar analyses could focus on urban and rural divides, enabling more equitable resource allocation and policy implementation.

While EMIS offers theoretical and practical benefits, its implementation is often hindered by challenges such as infrastructure limitations, financial constraints, and resistance to change (Adhikari & Budhathoki, 2025; Okafor, Ekwulu & Osha, 2024). Critical theory highlights the need to address systemic inequalities that may hinder the adoption of technologies like EMIS in resource-constrained settings (Habermas, 1981; [critical-theory.org](http://critical-theory.org)). In sub-Saharan Africa, issues like unreliable internet connectivity and limited access to electricity are significant barriers (Djirackor, 2020). Collaborative efforts with international organisations, such as the Global Partnership for Education, are crucial in overcoming these obstacles (GPE, 2023).

Theoretical frameworks suggest that the future of EMIS lies in its adaptability, inclusivity, and integration with emerging technologies. As education systems become more complex, EMIS must evolve to address new challenges, such as remote learning and the digital divide. Theories of digital transformation emphasise the importance of agility and innovation in sustaining long-term success (Westerman et al., 2014; [digittransformation.org](http://digittransformation.org)). In the context of Cameroon, scaling EMIS in regions like Mfoundi Division will require investments in infrastructure, capacity building, and stakeholder engagement. By leveraging global best practices and theoretical insights, EMIS can pave the way for a more efficient, equitable, and transparent education system.

## **Contextual Background**

Educational Management Information Systems (EMIS) are specialised platforms designed to collect, process, analyse, and disseminate educational data to inform decision-making and

improve administrative effectiveness. At their core, these systems aim to streamline processes like enrolment tracking, teacher deployment, resource allocation, and policy evaluation. UNESCO defines EMIS as a “core instrument for monitoring and evaluating education systems,” particularly in achieving global targets like Sustainable Development Goal 4 (SDG 4), which emphasises quality, equitable, and inclusive education (UNESCO, 2015). EMIS empowers policymakers with reliable data to make evidence-based decisions, ensuring accountability and transparency in education management.

The origins of EMIS trace back to post-World War II reconstruction efforts, where nations sought to rebuild their education systems as a driver of socioeconomic recovery. In the mid-20th century, manual systems were used to collect basic data, such as enrolment numbers and attendance rates, which supported initial planning efforts. However, as educational systems expanded in size and complexity, the demand for automated, integrated data solutions became apparent. By the 1980s, with the advent of personal computers, countries began transitioning to digitised data systems. The World Bank actively supported these efforts, financing EMIS-related projects in countries such as India, Kenya, and Ghana to address systemic inefficiencies (World Bank, 1995; [worldbank.org](http://worldbank.org)).

Advancements in technology have propelled the development of modern EMIS platforms, incorporating tools like cloud computing, big data analytics, and artificial intelligence. For example, the introduction of the National Education Management Information System (NEMIS) in Kenya demonstrated the power of real-time dashboards for tracking student and teacher information, combating issues such as ghost enrolments and uneven resource distribution (AfDB, 2019). Similarly, India’s EMIS under the Digital India initiative integrates education data across states, enabling efficient governance and reducing administrative redundancies (World Bank, 2020). These technological advancements have transformed EMIS into a cornerstone of modern education management.

Globally, EMIS has been instrumental in helping countries address education challenges. For instance, Rwanda’s EMIS has improved resource management, teacher deployment, and infrastructure planning, fostering equitable distribution of resources (UNESCO Institute for Statistics, 2021). In South Asia, EMIS has been utilised to monitor gender disparities in school attendance and ensure targeted interventions to address these gaps (UNESCO, 2018). Such systems are particularly valuable for tracking progress toward education reforms and

evaluating the effectiveness of policies, ensuring they align with global standards and local needs.

The education system in Cameroon is governed by a robust legal and policy framework, with "The Law of Orientation of Basic and Secondary Education" (Law No. 98/004 of April 14, 1998) serving as a foundational instrument. This law emphasises the principles of universal access to education, equity, and quality in basic and secondary education. It outlines the organisational structure of education in the country, the responsibilities of various stakeholders, and the goals of fostering national development through education. The law's focus on effective management, inclusivity, and accountability provides a legislative backdrop for the integration of systems like EMIS to enhance administrative efficiency (Cameroon Ministry of Education, 1998).

In alignment with the objectives of Law No. 98/004, which advocates for equitable access to education and efficient resource management, the implementation of EMIS in Cameroon offers a vital solution to systemic challenges. For example, the law underscores the importance of monitoring student performance, tracking teacher deployment, and ensuring the equitable distribution of resources across regions. EMIS directly supports these goals by providing reliable, centralised data systems that enable school administrators and policymakers to address disparities and promote transparency in decision-making processes (UNESCO, 2015).

The adoption of EMIS in regions like the Mfoundi Division responds to the operational gaps identified under the framework of this law. While the 1998 law provides a legal foundation for structured education reforms, its effective implementation has often been hindered by limited data systems and manual administrative processes. Issues such as overcrowded classrooms, inequitable allocation of teachers, and lack of timely reporting have persisted, particularly in urban centres like Yaoundé. EMIS can bridge this gap by modernising educational administration, aligning with the law's objectives to foster accountability, and streamlining operational tasks (Ministry of Education, Cameroon, 2020).

The adoption of EMIS is relatively new but increasingly critical for addressing systemic inefficiencies in the education sector. Challenges such as overcrowded classrooms, high student-teacher ratios, and poor resource management have driven the Ministry of Education to implement EMIS pilot projects in regions like the Mfoundi Division (Ministry of Education, Cameroon, 2020; [mineduc.gov.cm](http://mineduc.gov.cm)). These projects aim to consolidate data on student

enrolment, staff distribution, and infrastructure needs, supporting better planning and decision-making. However, despite its potential, EMIS implementation in Cameroon faces significant barriers, including unreliable infrastructure and limited digital literacy among staff.

The implementation of EMIS is not without its challenges, particularly in low-income and developing countries. Issues such as inconsistent internet connectivity, unreliable electricity, and financial constraints pose significant barriers (Djirackor, 2020; [springer.com](https://www.springer.com)). Moreover, the lack of trained personnel capable of managing and utilising these systems effectively can undermine their success. For example, reports from sub-Saharan Africa highlight that while EMIS platforms have been introduced, their adoption often lags due to limited understanding and resistance to change (IIEP, 2020; [hiiep.unesco.org](https://hiiep.unesco.org)). Addressing these challenges requires targeted investments in infrastructure, training programs, and capacity-building initiatives.

Collaboration between governments, international organisations, and private sector actors has been essential for overcoming barriers to EMIS adoption. Institutions like the Global Partnership for Education (GPE) and the African Development Bank (AfDB) have provided technical and financial support for EMIS projects across Africa (GPE, 2023; [globalpartnership.org](https://globalpartnership.org)). These collaborations have focused on improving data quality, training educators, and ensuring the long-term sustainability of EMIS initiatives. Such efforts underscore the importance of partnerships in scaling up EMIS and ensuring its integration into national education strategies.

Looking ahead, the full potential of EMIS lies in its scalability, adaptability, and integration with emerging technologies. Theories of digital transformation suggest that next-generation EMIS platforms must focus on user-centric design, enabling accessibility for educators, administrators, and policymakers alike (Westerman et al., 2014; [digitransformation.org](https://digitransformation.org)). In Cameroon, the successful scaling of EMIS in regions like Mfoundi could revolutionise educational planning and delivery, fostering transparency, accountability, and equity. By leveraging global best practices and aligning with local needs, EMIS can become a catalyst for long-term educational reforms, ensuring that no student is left behind.

## **Problem Statement**

Efficient educational administration is a cornerstone of successful learning environments, promoting equitable resource allocation, policy formulation, and overall school improvement. Educational Management Information Systems (EMIS) have emerged as critical tools for

ensuring that decision-makers have access to systematic, accurate, and timely data required for evidence-based policy-making and transparent governance (John Mark R. Asio, 2022; Sand, 2023; World Bank, 2015). Moreover, the integration of advanced technologies such as cloud computing and robust database management systems within EMIS infrastructures has been demonstrated to enhance administrative processes and improve accountability in educational institutions (Wemba, 2020; World Bank, 2015).

Despite these acknowledged benefits, secondary schools in the Mfoundi Division of Cameroon continue to face significant challenges that hinder the optimal utilisation of EMIS. In practice, these institutions struggle with persistent loopholes such as data inaccuracies, inefficient reporting mechanisms, and suboptimal resource management practices, all of which delay critical decision-making processes and weaken overall school administration (Sand, 2023; Wemba, 2020; World Bank, 2015). These deficiencies contribute to misinformed policy decisions, uneven resource allocation, and ultimately, compromised educational outcomes, negatively impacting both student welfare and institutional performance (John Mark R. Asio, 2022; Sand, 2023; World Bank, 2015). further underscores the persistent administrative challenges faced by secondary schools in Cameroon, highlighting the need for an integrated EMIS to combat data inaccuracies and resource mismanagement.

Given these challenges, the central problem addressed in this study is the suboptimal implementation and utilisation of the Educational Management Information System in selected secondary schools of the Mfoundi Division. This research seeks to investigate how enhancing the accuracy, efficiency, and integration of EMIS can effectively mitigate existing administrative loopholes, improve real-time data utilisation, and bolster overall administrative effectiveness in schools (John Mark R. Asio, 2022; Sand, 2023; Wemba, 2020; World Bank, 2015). The findings are expected to provide actionable insights that will support the modernisation of administrative strategies and the development of sustainable, evidence-based practices in educational governance within the division. It is with this problem that the study seeks to examine the educational management information system on administrative effectiveness in school (selected secondary schools in Mfoundi division, Yaoundé).

## **Research Objectives**

### **Main objectives:**

To determine the educational management information system on administrative effectiveness in selected secondary schools in Mfoundi Division, Yaoundé.

### **Specific Objectives**

To examine the extent to which the student information system (SIS) is utilised to improve administrative effectiveness in secondary schools in Mfoundi Division.

To assess the role of the human resources information system (HRIS) in managing staff data and supporting administrative effectiveness in secondary schools in Mfoundi Division.

To examine the extent to which the financial information system (FIS) is used to enhance administrative effectiveness in secondary schools in Mfoundi Division.

### **Main Research Question**

To what extent does the use of Educational Management Information Systems (EMIS) influence administrative effectiveness in secondary schools in the Mfoundi division, Yaoundé?

### **Specific Research Questions**

To what extent is the student information system (SIS) being used to improve administrative effectiveness in secondary schools in Mfoundi Division, Yaoundé?

To what extent does the human resources information system (HRIS) have on administrative effectiveness in secondary schools in Mfoundi Division, Yaoundé?

To what extent is the financial information system (FIS) used to enhance administrative effectiveness in secondary schools in Mfoundi Division, Yaoundé?

### **General Hypothesis**

There is no significant relationship between Educational Management Information Systems (EMIS) and administrative effectiveness in secondary schools in the Mfoundi division, Yaoundé.

## **Specific Hypotheses**

H01: There is no significant relationship between the use of the Student Information System and administrative effectiveness in secondary schools in Mfoundi Division, Yaoundé.

H02: Human Resource Information System has no significant relationship with the administrative effectiveness in secondary schools in Mfoundi Division, Yaoundé.

H03: There is no significant relationship between the financial information system and administrative effectiveness in secondary schools in Mfoundi Division, Yaoundé.

## **Significance of the Study**

### **To Administrators:**

This study holds considerable importance for secondary school administrators by providing guidance on the critical role of Educational Management Information Systems (EMIS) in enhancing administrative functions. It will assist administrators in understanding which types of EMIS are most effective for managing school operations efficiently. Additionally, the research will help identify common challenges faced in utilising EMIS for administrative effectiveness and propose strategies to address these obstacles (Mbawala, Lestari & Mwakalindile, 2024; Wemba, 2020). Moreover, EMIS acts as a vital tool for administrators in managing both financial and non-financial resources, including budgeting, accounting, student enrolment, academic results processing, communication, and reporting. By leveraging EMIS, school leaders can improve the overall efficiency and effectiveness of their administrative duties, thereby overcoming typical management challenges in educational institutions (Helal et al., 2021; Schildkamp, 2019).

### **To Researchers:**

This study serves as a valuable resource for scholars and stakeholders interested in investing in Educational Management Information Systems (EMIS). It makes a meaningful contribution to the fields of educational administration and educational technology by providing empirical insights into EMIS implementation and its impact on school management. Furthermore, the findings can inspire researchers to extend investigations beyond the Mfoundi Division to other regions within Cameroon and globally, thereby addressing existing gaps in the literature and advancing knowledge in this important area of study (Helal, 2021; Martins et al., 2019;

Schildkamp, 2019). By encouraging further research, this work supports the development of more effective EMIS strategies and fosters innovation in educational management systems, which are crucial for improving administrative practices and educational outcomes worldwide (Martins et al., 2019).

### **To policy makers:**

The outcomes of this study offer crucial insights for educational and school policy makers by demonstrating how an effective Educational Management Information System (EMIS) can substantially enhance planning, monitoring, evaluation, and overall decision-making within public secondary schools (Asio et al., 2022; Sand, 2023; Wemba, 2020; World Bank, 2015). By showcasing the development and benefits of EMIS, the research informs managers at various levels including those in the ministry and regional as well as divisional delegations of secondary education about the key features that contribute to a successful system capable of improving school management and, ultimately, the entire educational system in Cameroon (Sand, 2023; Wemba, 2020; World Bank, 2015). Such enhanced administrative efficiency not only addresses current challenges but also aligns with and supports broader national development strategies, including those set forth by the Education Sector Development Plan (ESDP) and the Sustainable Development Goals (SDGs) (UNESCO, 2020; World Bank, 2015). In essence, the study provides a robust, data-driven foundation that enables decision makers to effectively monitor progress and make informed plans for future educational reforms, thereby contributing to sustainable improvements and better outcomes across the education sector (Asio et al., 2022; Sand, 2023).

### **To Non-Governmental Organisations:**

Education NGOs benefit from this study as it highlights how EMIS can enhance transparency and accountability in school management. By providing reliable data on financial management, staff performance, and student attendance, EMIS enables NGOs to better assess the effectiveness of their programs and advocate for improvements where necessary. Research from Tanzania demonstrates that EMIS plays a crucial role in managing school data, improving communication, and facilitating efficient operation of school finances, which are key areas where NGOs often intervene to support educational development (Mbawala, Lestari & Mwakalindile, 2024).

## Scope of the Study

This study focuses on examining the impact of Educational Management Information Systems (EMIS) on administrative effectiveness in secondary schools within a specific geographical and content scope. By defining these boundaries, the research ensures a focused investigation while acknowledging its potential for broader application. The scope is outlined as follows:

**Geographical Scope:** The study is limited to secondary schools in the Mfoundi Division, located in the Centre region of Cameroon. This geographical focus includes both public and private secondary schools operating within this division.

**Content Scope:** This research work is delimited to investigating EMIS administrative effectiveness in secondary schools in Mfoundi Division, Yaoundé. Here, only EMIS on administrative effectiveness will be investigated, including how EMIS is used to collect, process, analyse, and disseminate data that aids in the management and administration of educational systems. Though limited to this scope, the work does not deny the fact that it can be generalised to other themes and domains.

## Operational Definition of Terms

**Administration:** The organisation and use of men and materials to accomplish a purpose, highlighting the resource management aspect of administration (Felix A. Nigro). Or the organisation and direction of human and material resources to achieve desired ends, which underscores the coordination of resources (Pffiffner and Presthus).

**Administrative Effectiveness:** Educational leadership involves school principals' capacity to execute administrative duties such as instructional oversight, internal coordination, institutional governance, student management, performance monitoring, and fostering community partnerships to align with school objectives (Adeniyi, 2012). Similarly, it reflects school administrators' proficiency in fulfilling core administrative responsibilities that directly contribute to achieving overarching institutional goals (Chinyere, Wagbara, & Ukaigwe, 2019).

**Education is defined** as a fundamental human right and a global public good that has the transformative power to improve individual lives, communities, and the planet. UNESCO emphasises that "education is everyone's right throughout life," highlighting its importance in achieving personal and societal development (UNESCO, 2024).

**Effectiveness:** Refers to the skilful management of diverse, often conflicting social forces within an organisation, as defined by Adams (1963) and cited in Besong (2001). It involves rights and responsibilities tied to roles, not gender, and is measured by achievements realised through administrative actions, particularly by secondary school principals. Ultimately, effectiveness serves as a precursor to fulfilling the core functions and objectives of these leadership roles.

**Information is a** critical resource that influences the effectiveness of educational institutions. "Information is not only a tool for decision-making but also a means to enhance communication and collaboration within educational settings" (Hadji, 2019).

**Information and Communication Technology (ICT):** A combination of devices and technology resources, which are used to manipulate and correlate information (Kaware & Sain, 2015). Technology tools cover all electronic and digital devices such as computers, the internet, and other multimedia technologies.

**Information Systems:** Refer to a wide range of platforms, databases, and tools designed to collect, manage, analyse, and share data across various fields such as education, culture, science, and communication. These systems aim to support informed decision-making, policy development, and global collaboration to achieve sustainable development goals (UNESCO).

**Management:** The art of coordinating human and material resources to achieve educational goals effectively (Maingari, 2023). This definition underscores the necessity for managers in education to possess both administrative skills and an understanding of pedagogical frameworks to foster a conducive learning environment. It can also be defined as a process that involves planning and coherence in educational program development, emphasising the need for effective organisational structures to achieve educational goals (Mbappé et al., 2021).

**Management Information Systems (MIS):** Refer to a structured system that gathers, processes, stores, and disseminates information required for managing an organisation effectively. MIS encompass various subsystems and tools that help in data collection, data processing, and generating valuable insights for decision-making. MIS integrates technology, people, and processes to optimise business operations. It typically involves databases, hardware, software, procedures, and personnel, all working together to provide timely and accurate information to managers at all levels of an organisation ([www.cloudoffix.com](http://www.cloudoffix.com)).

**System:** A set of interrelated components, with a clearly defined boundary, working together to achieve a common set of objectives by accepting inputs and producing outputs in an organised transformation process (AlMamary & Aziati, 2014).

**Technology:** Broadly defined as the application of scientific knowledge for practical purposes, particularly in industry. It encompasses a wide range of tools, systems, and processes that are designed to solve problems, enhance efficiency, and improve human life.

**An Educational Management Information System (EMIS):** A comprehensive framework designed to collect, store, process, analyse, and disseminate educational data. According to UNESCO's 2020 guidelines, EMIS serves as a critical tool for enhancing decision-making and policy formulation in education.

# CHAPTER TWO

## REVIEW OF RELATED LITERATURE

The integration of technology into educational administration has significantly evolved, with Educational Management Information Systems (EMIS) emerging as a transformative tool to enhance administrative effectiveness. According to UNESCO (2020), EMIS offers a systematic approach to collecting, processing, and analysing educational data, enabling evidence-based decision-making and efficient resource allocation. Scholars such as Mbappé et al. (2021) emphasise EMIS's role in optimising management processes in secondary schools, particularly in developing regions like Mfoundi Division, where administrative challenges persist. In this context, EMIS can address inefficiencies by streamlining record-keeping, improving communication, and supporting strategic planning.

Adeniyi (2012) highlights EMIS's impact on leadership effectiveness, including instructional oversight and performance monitoring. However, barriers such as inadequate training, resistance to change, and limited technological infrastructure continue to hinder its adoption and utilisation (Kaware & Sain, 2015). Understanding these challenges is crucial for maximising EMIS's potential in improving school administration. MIS frameworks integrate people, technology, and processes to provide reliable and timely data essential for managing educational institutions. They serve as critical tools for enhancing transparency, accountability, and operational efficiency in school administration (Hadji, 2019; Tung, 2003; Villanueva, 2018). Recent research by Asio et al. (2022) underscores EMIS's expanding role beyond administrative tasks to supporting evidence-based policymaking and monitoring educational outcomes.

### **Conceptual Framework**

The constituents of an Educational Management Information System (EMIS) are the key components that work together to ensure its effectiveness in educational administration. EMIS is a concept adopted from the broader framework of Management Information Systems (MIS). Essentially, EMIS can be viewed as a specialised MIS that deals with the collection, storage, analysis, and dissemination of educational data. According to Guru99 (2024), MIS focuses on recording, storing, and analysing data to generate actionable insights that support both day-to-day decision-making and long-term strategic planning. Similarly, Davenport (1993) describes MIS as a system designed to provide timely and relevant information to managers, facilitating

efficient organisational operations and strategic management. In the educational context, EMIS integrates these principles to support data-driven decision-making, policy formulation, and effective management at all levels of the education system (Bertalanffy, 1968; Hadji, 2019).

## **Components of EMIS/IS**

### **Hardware**

An Educational Management Information System (EMIS) refers to the physical devices and equipment that support data processing, storage, and communication within the system. It forms the foundational infrastructure enabling the collection, management, and dissemination of educational data (ChalkBox, 2025; JICA Report, 2023). Typical hardware components used in EMIS include computers (desktops and laptops) for data entry and processing, servers that store and manage large databases, and networking equipment such as routers, switches, and modems that facilitate connectivity and data sharing across different education and administrative levels (LibreTexts, 2022; UNESCO, 2023). Peripheral devices like scanners, printers, and storage devices (external hard drives, USB drives) also play crucial roles in digitising records and backing up data (Study.com, 2024). Additionally, mobile devices such as tablets and smartphones are increasingly incorporated to enable remote access and real-time data updates (AjirACAD, 2025). The efficiency and reliability of an EMIS heavily depend on the adequacy and quality of its hardware components, as outdated or insufficient hardware can hinder system performance, compromise data security, and limit accessibility (Slideshare, 2014). Therefore, investment in robust hardware infrastructure is essential for ensuring that EMIS can effectively support educational administration, improve decision-making, and enhance overall institutional efficiency (FHI360, 2024). In summary, hardware serves as the tangible backbone of EMIS, enabling the seamless operation of software applications and the effective management of educational data across multiple levels (ChalkBox, 2025; UNESCO, 2023).

### **Software**

An Educational Management Information System (EMIS) refers to the programs and applications that enable hardware to perform specific educational administrative tasks. It includes both system software, such as operating systems that manage hardware resources, and application software designed for educational management functions. Key software components in EMIS typically include the Student Information System (SIS), Human Resource

Information System (HRIS), Financial Information System (FIS), Academic Information System, and Fee Management System (ChalkBox, 2024; OpenEMIS, 2001). These software modules facilitate the automation and integration of critical school operations such as student enrollment, attendance tracking, grade management, staff payroll, budgeting, and fee collection (Mac EDMS, 2024; AcademiaERP, 2023). The SIS manages student records and academic data, while HRIS handles staff information and performance evaluations. FIS oversees budgeting, invoicing, and financial reporting, ensuring transparency and accountability. Modern EMIS software often supports cloud-based storage and advanced analytics, enabling real-time data access and decision-making (LeadSchool, 2024). Additionally, learning management systems (LMS), communication portals, and reporting tools are integrated to support teaching, parent engagement, and policy compliance (AjirACAD, 2025). Effective EMIS software improves data accuracy, reduces manual errors, streamlines administrative workflows, and enhances communication among stakeholders (ChalkBox, 2024; OpenEMIS, 2001). However, successful implementation requires careful software selection, customisation, and training to meet the institution's specific needs and infrastructure capabilities (ChalkBox, 2024). Overall, software is the core enabler of EMIS functionality, transforming raw data into actionable information that drives educational administration and policy (UNESCO, 2020).

## **Data**

The foundational element of an Educational Management Information System (EMIS) consists of raw facts collected from various educational institutions, such as student enrollment, attendance, teacher qualifications, and financial records. The process of data collection in EMIS involves designing, distributing, and gathering data through online applications and digital tools shared with schools and education offices to ensure accuracy and timeliness (EMIS Knowledge Hub, 2024). Data collection methods include school censuses, surveys, and administrative records, often facilitated by digital platforms that enable real-time data capture and minimise errors (Goel & Ruchika, 2012; UNESCO, 2006). Once collected, data undergoes processing stages that include validation, cleaning, storage in structured databases, and analysis to transform raw data into meaningful information for decision-making (UNESCO, 2006; UIS, 2021).

Data devices used in EMIS encompass hardware such as computers, servers, and networking equipment that support data entry, storage, and communication. Software applications, including database management systems and data analytics tools, enable efficient processing,

retrieval, and reporting of educational data (EMISOnline, 2025; UIS Buyer’s Guide, 2023). Modern EMIS platforms also leverage web services and XML-based data exchange formats to ensure interoperability across diverse computing environments, facilitating seamless data transfer between schools and central databases (Goel & Ruchika, 2012). The integration of these data collection and processing tools supports the production of high-quality, timely, and reliable data essential for educational planning, policy formulation, and resource allocation (Global Partnership, 2024). Ensuring data privacy and security throughout the collection and processing phases remains a critical priority to maintain stakeholder trust and data integrity (EMIS Knowledge Hub, 2024).

**Figure 1: Conversion of data into information**



**Source: (Al-Mamary and Aziati, 2014, p2)**

## **People**

A critical component of Educational Management Information Systems (EMIS), encompassing all users who interact with the system, including IT professionals and end-users such as school administrators, teachers, and policymakers. IT professionals are responsible for maintaining the technical infrastructure, ensuring system security, troubleshooting issues, and implementing updates, which are essential for the smooth operation and sustainability of EMIS (IITMS, 2024). End-users utilise the data generated by EMIS for various administrative and educational decision-making processes, including monitoring student progress, managing staff, and allocating resources efficiently (Vidyalaya School Software, 2023). The system’s effectiveness depends heavily on the users’ ability to access, interpret, and apply information, which necessitates adequate training and support (WPSchoolPress, 2024). Different user roles within EMIS or related Learning Management Systems (LMS) come with specific permissions and responsibilities, ensuring that data access is controlled and relevant to each user’s function. For example, principals may have broader access for school-wide monitoring, while teachers have access only to their classes’ data (LAUSD, 2020; Docebo, 2024). This role-based access enhances data security and operational efficiency by limiting unnecessary data exposure while empowering users to perform their tasks effectively. Moreover, effective communication facilitated by EMIS among teachers, students, parents, and administrators promotes

transparency and accountability, contributing to improved educational outcomes (WPSchoolPress, 2024). Ultimately, the human element in EMIS is indispensable, as technology alone cannot achieve administrative effectiveness without skilled and engaged users who leverage the system to support educational goals.

## **Processes**

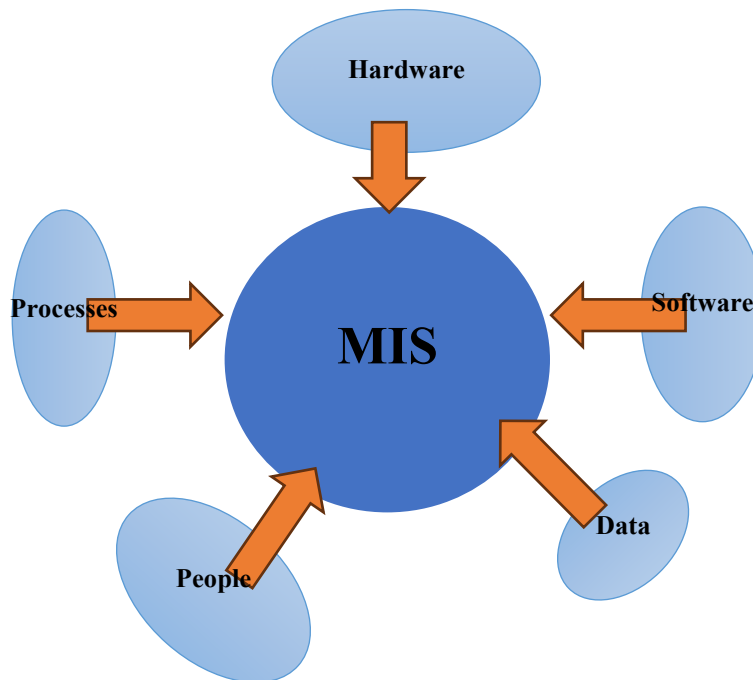
A series of structured, coordinated actions or steps designed to achieve specific organisational goals efficiently and effectively. In the context of Educational Management Information Systems (EMIS), processes govern how data is collected, validated, stored, analysed, and disseminated to ensure smooth information flow across various levels of the education system (UNESCO, 2021). Well-defined processes enhance productivity by standardising workflows, reducing errors, and minimising redundancies, thereby enabling timely decision-making and resource allocation (Bessonova & Gamage, 2024). They also establish control mechanisms that ensure data integrity, compliance with policies, and accountability among stakeholders (Hadji, 2019). Effective processes facilitate communication between schools, districts, and education ministries, ensuring that accurate and relevant information reaches the right decision-makers (Tung, 2003). Moreover, these processes support continuous monitoring and evaluation, allowing education systems to adapt and respond to emerging challenges (Mbappé et al., 2021). In essence, processes in EMIS serve as the operational backbone that integrates technology, people, and data to optimise educational administration and policy implementation (Asio et al., 2022). Without robust processes, even the most advanced EMIS technologies cannot deliver their full potential in improving educational outcomes and administrative effectiveness (UNESCO, 2021).

Information systems (IS) in education are integral frameworks that combine people, technology, and processes to collect, process, store, and disseminate data essential for effective educational management and decision-making (UNESCO, 2008). Hadji (2019) defines an Information System as “a system for the collection, integration, processing, maintenance, and dissemination of data and information to support decision-making, policy analysis and formulation, planning, monitoring, and management at all levels of an education system,” emphasizing its systemic nature and role in providing reliable, timely data for education administration. Expanding on this, Aldarbesti and Saxena (2014) describe IS in education as a transformative tool that converts raw data into actionable information, enabling administrators to make informed decisions and optimise resource allocation.

ChalkBox (2025) highlights that Educational Management Information Systems (EMIS), a specialised form of IS, integrate components such as student information systems, academic management, financial systems, and human resource management to streamline school operations and enhance decision-making at all institutional levels. Similarly, Vincent-Lancrin and González-Sancho (2023) note that modern student information systems not only maintain comprehensive student data but also provide real-time, actionable insights that support personalised learning and system-wide educational planning. Domenick Saia (2023) explains that these systems facilitate data visualisation, reporting, and analysis tailored to the needs of diverse stakeholders, from classroom teachers to national policymakers.

Moreover, the layered structure of educational information systems supports decision-making at multiple levels: strategic policy formulation, operational resource allocation, and local administrative management (Technology Integrated Education, 2025). This hierarchical integration ensures that aggregated data from schools informs national education goals, while granular data support day-to-day school management (Abdul-Hamid, 2017). Effective IS thus bridge the gap between data collection and practical educational outcomes by enabling evidence-based planning, monitoring, and evaluation (Hakim, 2019). Educational information systems represent a vital infrastructure for modern education governance. By harnessing technology and systematic data management, they empower educational leaders to improve transparency, accountability, and responsiveness within education systems (Hallak & Poisson, 2007; IIEP, 2018). However, the realisation of these benefits depends on coordinated efforts to ensure data quality, system interoperability, user training, and sustained investment in ICT infrastructure (ChalkBox, 2025; Vincent-Lancrin & González-Sancho, 2023).

**Figure 2: Components of MIS**



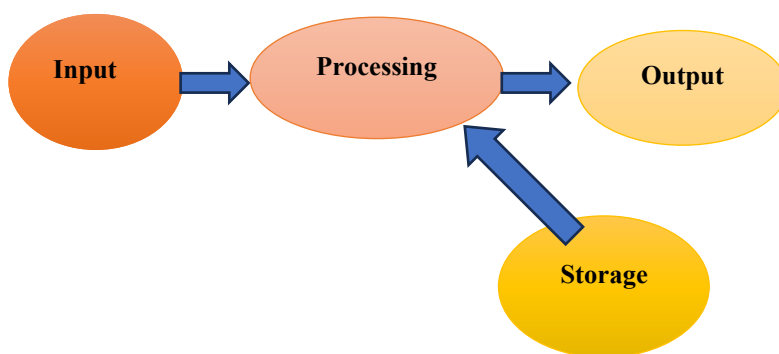
**Source: [www.geeksforgeeks.org](http://www.geeksforgeeks.org)**

Information refers to processed or organised data that is meaningful and useful to individuals, systems, or organisations. Hassan Aldarbesti and J.P. Saxena (2014) emphasise that information provides knowledge, context, or insights, enabling informed decisions, actions, or understanding. This transformation from raw data into actionable knowledge is a key function of information systems in education (Aldarbesti & Saxena, 2014). Furthermore, information-based decisions are crucial for improving efficiency in education systems (World Bank, 2015). According to Klein et al. (2020), information in education systems is not only about data processing but also about enabling educators and learners to access, share, and reuse educational resources effectively to enhance learning outcomes. Institut des Hautes Études de l'Éducation et de la Formation (IH2EF, 2025) stresses the importance of integrating information flows across education levels to ensure coherent planning and monitoring.

A system refers to the organised framework of institutions, policies, processes, and resources that collectively deliver education to learners. It encompasses formal and non-formal learning opportunities, including schools, universities, training institutes, and other educational programs, along with their stakeholders such as teachers, administrators, and policymakers.

Recent literature continues to emphasise the systemic nature of education as a complex, adaptive network of interrelated components working towards shared goals (Fullan & Quinn, 2023; Spillane & Zoltners, 2021). More broadly, a system is a structured set of elements or processes that interact dynamically to perform a function or achieve a goal. Lunenburg (2010) described systems as entities consisting of inputs, transformation processes, outputs, feedback, and an environment, highlighting their interconnected and goal-oriented nature. Building on this, Fullan and Quinn (2023) characterise educational systems as adaptive and evolving, where continuous feedback loops enable learning and improvement at multiple levels.

**Figure 3: System Diagram Flow**



**Sources:** Spillane & Zoltners (2021).

### **The Connotation of Management Information System (EMIS)**

Management Information System (MIS) in education refers to a system designed to collect, process, store, and disseminate data to support decision-making, planning, monitoring, and management within educational institutions. It integrates technology, people, and processes to ensure the efficient management of educational resources and improve the overall quality of education. According to one Advanced (2024), MIS is a platform or software solution that centralises student records, timetables, attendance, and learner performance data to streamline administrative and academic operations. ChalkBox (2025) further explains that Educational Management Information Systems (EMIS) typically consist of components such as student information systems, academic information systems, financial information systems, and human resource information systems, each managing different aspects of educational administration.

Prashant Borkar (2021) highlights that MIS in education helps institutions manage data effectively, enabling transparency, informed decision-making, and better resource allocation. Abdul-Hamid (2017) emphasises the importance of hierarchical data integration within education systems, where aggregated data informs national education goals while granular data

supports daily school management. The system operates through various interrelated functions such as data collection, policy making, and planning that together build a unified framework to enhance administrative effectiveness in education or organisations (Institute of Indian Technical and Management Studies (IITMS), 2023).

Elrod, Stanley, Cudney, Hilgers, and Graham (2022) further underscore the evolving role of MIS education in preparing professionals to manage and innovate within these complex systems. This integration supports not only data management but also strategic planning and operational efficiency across educational institutions (OECD, 2023; Yusuf Suleiman et al., 2025) Antwi and Gideon (2019) argue that while systems are composed of interconnected and interdependent parts working together as a unified entity to achieve common goals, defining a Management Information System (MIS) remains complex. Lucey (2005), as cited in Antwi and Gideon (2019), contends that there is no universally accepted definition of MIS, as existing definitions often reflect the biases and priorities of the scholars who propose them.

This subject has adopted the following definition and views of management information systems (MIS). Management Information System (MIS) can be seen as a database management system tailored to the needs of managers or decision makers in an organisation. According to Guru99 (2024), MIS focuses on recording, storing, and analysing data to produce actionable insights that support day-to-day decision-making and long-term strategic planning. According to UNESCO (2018), MIS is described as "a system for the collection, integration, processing, maintenance, and dissemination of data and information to support decision-making, policy analysis and formulation, planning, monitoring, and management at all levels of an education system."

### **Characteristics of Effective EMIS**

In literature, there are many characteristics discussed for an effective MIS system (Cassidy and Creswell, 1997). Some of them are listed below:

- MIS system should be composed of integrated subsystems with the ability to be forward and backwards-looking systems.
- MIS system should be capable of planning and controlling the clearly defined business activities.

- MIS system should be capable of generating reports that can help the management at all levels in planning and controlling all of their current and expected business activities.
- MIS system should be able to retrieve the information about the operations control at an appropriate time and should allow transactional data processing.
- For a timely response, the MIS system should have batch processing as well as interactive operational modes.
- In order to store the data that is being frequently accessed, the MIS system should use all of the data protection procedures that can ensure authorised users in a more protective way.
- In order to extract the relevant information quickly, the MIS system should have appropriate data storage media, such as random or direct access storage.

In order to generate meaningful and effective output for the ongoing control operations, MIS systems should enable the standard and custom-made models that must have a storage medium for the online data. According to Kenneth Hamlet (2002), effective management information systems possess numerous qualities, among which are the following:

**Relevance:** This type of information characteristic is of the truth. The overriding quality of information must be relevant to the problem being considered, though information may take different forms. Examples are reports, messages, tabulation, etc. The positive effect it has on the problem or needs at hand will mainly be the functions of its relevance. The absence of this quality will make understanding the message more difficult and may eventually cause frustration to the user.

**Accuracy:** Information should be sufficiently accurate for it to be relied upon by those in the management team and for the purpose for which it is intended. Even though absolute accuracy may not be obtainable, the level of accuracy must be related to the decision level involved. Also, accuracy should not be confused with precision. Information may be inaccurate but precise or vice-versa.

**Time:** Good information is that which is communicated in time to be used. The time of regularly produced information is essentially important in this regard. Information should be produced at a frequency which is related to the type of decision or actually involved.

**Details:** Information should contain the least number of details consistent with effective decision making. The level of detail usually varies with the level in the organisation.

## **Development and Implementation of MIS**

The implementation of information systems is a significant investment for tertiary institutions. Since information systems are sociotechnical systems, development involves the joint design of activity systems and ICT systems (Davies, 2009). It is important to define the key stages of the information system implementation process. Consequently, Davies (2009) presented information system implementation stages which are concerned with a number of key activities in the process. In addition, this information system implementation process concept is similar to O'Brien (2004), who explained a five-step process called the information development cycle, which includes the steps of: investigation, analysis, design, implementation and maintenance.

The first phase of the information system development process is systems investigation or system conception, which aims to determine how, based on informatics planning and management, to develop a project management plan and obtain management approval. Systems analysis is focused on identifying the information needs and developing the functional requirements of a system. Systems design is the process of planning a technical artefact and developing specifications for hardware, software, data, people, and network. In addition, this phase involves building the information system to its specifications. System implementation involves the delivery of systems, testing the system, training people to use the system, and converting to the new business system. Finally, system maintenance is the process of making necessary changes to the functionality of an information system (Davies, 2009; O'Brien, 2004).

Nonetheless, Zmud and Cox (1979) defined, traditionally, the MIS implementation stage, which involves different related activities including: initiation, strategic design, technical design, development, conversion, and evaluation. Each implementation stage can be described as follows: initiation includes project definition and justification; strategic design refers to establishing the scope and requirement of a project (i.e. design attribute visible to the users); technical design involves translating the strategic design into hardware, software, and process specifications (i.e. design attributes not visible to the users); development concerns the acquisition of hardware, the acquisition and construction of software, and the testing of both

hardware and software; conversion relates to the insertion of the new information system into the organisation; finally, evaluation assesses the effectiveness and efficiency of the MIS.

### **MIS Quality Measures**

One of the most studied dimensions of MIS success is system quality. It refers to measures of the information processing system itself (DeLone and McLean, 1992). System quality is the desirable characteristics of an information system. System quality is measured by ease of use, system flexibility, system reliability, and ease of learning, as well as system features of intuitiveness, sophistication, flexibility, and response times (Petter et al., 2008). High-quality management information systems mean high quality of information, perceived usefulness, decision makers' satisfaction, and an increase in the quality of managerial decision making. There are a lot of measures for system quality, and these measures differ from one researcher to another. The common measures for system quality that are used and adopted by researchers are ease of use, flexibility, response time and reliability. Ease of use is the degree to which decision makers believe that using MIS for managerial decision making would be free from effort. Low flexibility of the system may cause lower satisfaction of users of the system and affect the quality of the information. Response time is the length of time taken by a system to respond to an instruction. Decision makers need timely information to make the right decision. Lengthy system response times may cause lower satisfaction among decision makers. Reliability is the degree to which the user and decision makers can trust the MIS.

### **Role of Management Information Systems in Decision Making**

Efficient organisations require established systems to enable them to make the best possible decisions in the situations they are likely to meet. Thus, an organisational information system should collect data, analyse and present this as useful information that can be retrieved as the basis of expert knowledge at the point of decision. Once decisions are made, they must be passed on to those who implement them, carried out, and the success or failure of the operation monitored. Increasingly, decisions can be automatically implemented using the technology, thus enabling organisational objectives to be achieved with maximum efficiency (Tansey, 2003).

Decision-making is one of the main functions of management at all levels of managerial and supervisory work in organisations, even in the everyday life of humans. In organisations, top managers direct a team or group by decision-making and strategic planning, while people at

the lower levels make daily decisions on the basis of assigned tasks. As a result, information needs to differ according to levels. For this reason, management information systems not only support top managers in implementing strategic decisions but also enable middle managers to access information for their repetitive or daily decisions (Momeni, 2001). Accordingly, MIS is not only for senior staff members in tertiary institutions but also for those at the grassroots level, including students.

### **Functions of EMIS in Education:**

**Data Management:** MIS collects, organises, and stores educational data, such as student performance metrics, attendance records, and administrative details, to support efficient operations (UNESCO, 2020).

**Decision Support:** MIS provides timely and accurate information to enable informed decisions on resource allocation, curriculum design, and institutional planning (Antwi & Gideon, 2019).

**Performance Monitoring:** By tracking institutional metrics, MIS helps identify areas for improvement, ensuring quality and accountability in education systems (Lucey, 2005).

**Resource Optimisation:** It analyses data to allocate resources efficiently, such as teacher assignments and budget distribution (Borkar, 2021).

**Reporting and Communication:** MIS streamlines communication across departments and generates comprehensive reports to aid in collaboration (World Bank, 2020).

**Student Services:** Supports processes such as enrolment, grading, attendance tracking, and access to academic records, ensuring smooth interactions for learners (UNESCO, 2020).

**Planning and Forecasting:** Provides data-driven insights and predictions to assist in anticipating future needs in education (Davies, 2009).

**Enhancing Transparency:** Promotes accountability by maintaining centralised databases accessible to stakeholders (Cassidy & Creswell, 1997).

### **Role of Management Information System**

According to Antwi & Gideon (2019), Laudon & Laudon (2020), and Prince, Rainer, & Watson (2024), the role of the MIS in an organisation can be compared to the role of the heart in the body. The information is the blood, and MIS is the heart. In the body, the heart plays the role of supplying pure blood to all the elements of the body, including the brain. The heart works faster and supplies more blood when needed. It regulates and controls the incoming impure blood, processes it and sends it to the destination in the quantity needed. It fulfils the needs of the blood supply to the human body in the normal course and also in crisis.

The MIS plays the same role in the organisation. The system ensures that appropriate data is collected from the various sources, processed and sent further to all the needy destinations. The system is expected to fulfil the information needs of an individual, a group of individuals, the management functionaries, the managers and top management. Here are some of the important roles of the MIS:

- The MIS satisfies the diverse needs through a variety of systems such as a query system, analysis system, modelling system and decision support system.
- The MIS helps in strategic planning, management control, operational control and transaction processing. The MIS helps the clerical personnel in the transaction processing and answers the queries on the data about the transaction, the status of a particular record and reference to a variety of documents.
- The MIS helps the junior management personnel by providing the operational data for planning, scheduling and control, and helps them further in decision-making at the operational level to correct an out-of-control situation.
- The MIS helps the middle management in short-term planning, target setting and controlling the business functions. It is supported by the use of the management tools of planning and control.
- The MIS helps the top-level management in goal setting, strategic planning and evolving the business plans and their implementation.
- The MIS plays the role of information generation, communication, problem identification and helps in the process of decision-making. The MIS, therefore, plays a vital role in the management, administration and operation of an organisation.

### **Concept of Education Management Information System**

Educational management information systems (EMIS) provide valuable insights to school administrators through the systematic collection and analysis of data about student demographics, academic performance, teacher credentials, and overall school operations (Ibrahim, Mohammed, & Suglo, 2025). In turn, these insights allow for informed decision-making to improve the educational process in terms of efficiency, effectiveness, and overall quality. The Educational Management Information System (EMIS) is an online hub that provides vital data to influential people in the education sector, allowing them to improve education at all levels (Niar, 2022). Helai, Ahmed, and Bhuiyan (2021) noted that EMIS stands

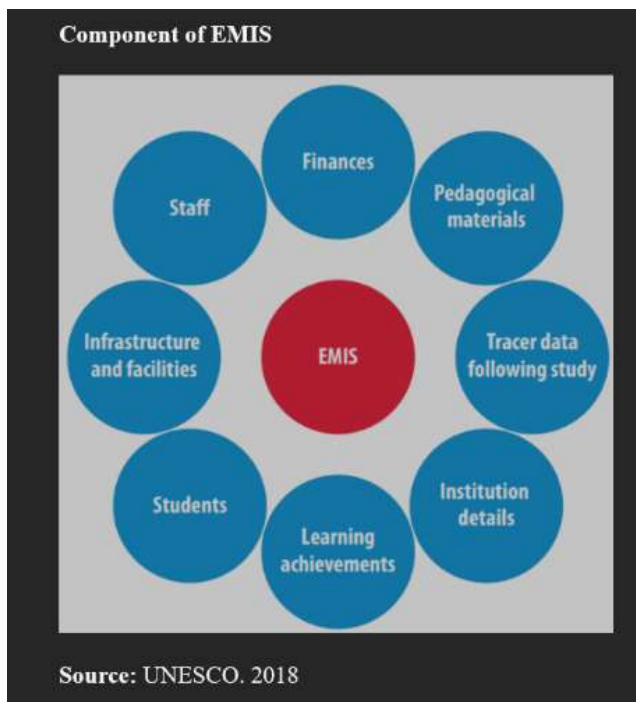
for education management information system, and it is a system for managing educational data.

This system is known by a variety of names in various situations. According to Hua and Herstein (2023), an EMIS can handle a wide range of data, including demographics, enrolment, discipline, and other functional elements for students; learning data such as assessment and achievement data, teacher evaluations, curriculum effectiveness data, and other factors related to progression through educational institutions. Assessing the status of education in a nation requires knowledge about the educational system's inputs, resources, governance, operations, and results. An education management information system (EMIS) offers systematic, high-quality data in a well-structured, enabling environment that makes it easier to use the data in planning and policy discussions (Abdul-Hamid, 2014).

An educational Management information system (EMIS) is an organised integration of hardware and software technologies, data, processes, and human elements deployed in the educational system for easy planning, administration and quality control (Kumar & Sharma, 2023). EMIS is a software system that focuses on the management of information technology to provide efficient and effective strategic decision-making in schools (UNESCO IIEP, 2023). Education Management Information System (EMIS) refers to a system for the collection, integration, processing, maintenance and dissemination of data and information to support decision-making, planning, policy analysis, monitoring and evaluation of all levels of the education system (Adam & Mitchell, 2024). EMIS is a system of people, technology, models, methods, processes, procedures, rules and regulations that function together to provide a comprehensive, integrated set of relevant and timely educational data to planners, decision-makers and managers of education at all levels (UNESCO, 2023; World Bank, 2023).

The objectives of the Education Management Information System (EMIS) according to Matthews (2016) include; strengthening the education statistical system in Cameroon by linking and assembling different existing information systems, integrating and synthesizing them in one single system of all education data quantitatively and qualitatively; and to produce more relevant, reliable and timely data needed at every tier of government for strategic planning, policy formulation and decision support initiative in education in Cameroon (International Journal on Integrated Education, 2022; Wemba, 2020;)

**Figure 4: Components of EMIS**



### **Objectives of Education Management Information System (EMIS)**

To provide educators and administrators with accurate and timely data for efficient educational planning, policy formulation, and assessment.

To improve policies and practices that strengthen national education systems, aiming for equitable quality education for all, as part of broader continental and global education strategies.

To facilitate evidence-based decision-making by integrating people, technology, and practices for data collection, processing, and dissemination in the education sector.

To streamline data flow from schools through local to national levels, ensuring timely responses to administrative, management, and policy information needs.

To develop and report on key indicators that monitor the achievement of national educational standards and targets across different administrative levels.

To improve capacities in data processing, storage, analysis, and supply so that education planners and administrators have reliable and timely data.

To coordinate and enhance efforts in acquiring, processing, and disseminating educational data to reduce duplication and fill information gaps. To provide a basis for policy dialogue and scenario planning for education system development (Sonal, 2021).

### **Functions of an Educational Management Information System (EMIS)**

**Data Collection:** EMIS systematically gathers data from various sources within the education sector, such as student attendance, academic performance, staff information, infrastructure, and finances.

**Data Storage and Maintenance:** It securely stores and maintains comprehensive databases, ensuring data integrity and easy retrieval, often utilising cloud-based systems for accessibility and security.

**Data Integration:** EMIS integrates fragmented data and processes into a unified system, linking information across departments and levels to provide a coherent overview for planning and management.

**Data Analysis:** The system analyses collected data using algorithms and analytics tools to identify trends, patterns, and issues, supporting evidence-based decision-making.

**Reporting and Dissemination:** EMIS generates customised reports for various stakeholders, including administrators, policymakers, teachers, and parents, facilitating transparency and informed action.

**Resource Management:** It helps track and manage educational resources such as teaching materials, infrastructure, and finances to optimise utilisation and reduce wastage.

**Administrative Automation:** EMIS automates routine administrative tasks such as admissions, scheduling, examination management, grading, and attendance tracking, enhancing efficiency and reducing errors.

**Support for Decision-Making and Planning:** By providing timely and accurate information, EMIS supports strategic planning, policy formulation, and operational management at all levels of the education system.

**Security and Privacy:** Ensures data security through access controls, encryption, and authentication measures to protect sensitive educational information (Sonal, 2021).

**Figure 5: Functions of an Educational Management Information System (EMIS)**



**Source: (Sonal,2021)**

### **Criteria for Effective Education Management Information Systems (EMIS)**

**Enabling Environment:** A supportive enabling environment is fundamental for the effectiveness of EMIS. This includes a robust legal and policy framework, clearly defined organisational structures, sufficient human resources, reliable infrastructure, and sustainable funding. These components ensure the system’s long-term sustainability and adaptability (Abdul-Hamid, 2014; UNESCO Institute for Statistics, n.d.).

**System Soundness:** Refers to the comprehensiveness and integration of the EMIS architecture. An effective EMIS consolidates diverse data sources into a unified, interoperable platform, minimising fragmentation and facilitating holistic decision-making (Abdul-Hamid, 2014; UNESCO Institute for Statistics, n.d.).

**Data Quality:** Ensuring high-quality data is essential. The system must maintain accuracy, completeness, timeliness, reliability, and security throughout all stages—from collection to dissemination. Reliable data empowers stakeholders and promotes transparency and accountability (Abdul-Hamid, 2014; UNESCO Institute for Statistics, n.d.).

**Utilisation for Decision-Making:** Effectiveness is achieved when data is actively used by policymakers, administrators, and educators for planning, policy development, monitoring, and evaluation. This requires building user capacity to analyse and interpret data and fostering a culture of evidence-based decision-making (Abdul-Hamid, Saraogi, & Mintz, 2021; World Bank, 2017).

**Interoperability and Integration:** EMIS platforms should support interoperability with other data systems (finance, health, national statistics) to enable efficient data sharing, reduce duplication, and provide a comprehensive sector overview (Abdul-Hamid, Saraogi, & Mintz, 2021; UNESCO Institute for Statistics, n.d.; World Bank, 2014).

**User Training and Support:** Continuous training and technical assistance for users, including administrators, teachers, and policymakers, is vital for adoption and effective use. Proper training enhances data accuracy and sustainability (EdTech Hub, 2023; UNESCO, 2021).

**Flexibility and Scalability:** EMIS must adapt to changing policies, technology, and educational priorities, and scale to manage growing data volumes and complexity (Abdul-Hamid et al., 2021; World Bank, 2017).

**Table 1: Key Criteria for Effective EMIS**

Criteria	Description	Sources
Enabling Environment	Supportive legal, policy, and organisational framework; sufficient resources	Abdul-Hamid, 2014; UNESCO Institute for Statistics, n.d.
System Soundness	Comprehensive, integrated, and technically robust system architecture	Abdul-Hamid, 2014; UNESCO Institute for Statistics, n.d.
Data Quality	Accurate, timely, reliable, secure, and relevant data	Abdul-Hamid, 2014; UNESCO Institute for Statistics, n.d.
Utilisation for Decision-Making	Active use of EMIS data for planning, monitoring, and policy formulation	Abdul-Hamid, Saraogi, & Mintz, 2021; World Bank, 2017
Interoperability & Integration	Seamless connection with other relevant data systems	Abdul-Hamid, Saraogi, & Mintz, 2021; UNESCO Institute for Statistics, n.d.; World Bank, 2014
User Training & Support	Ongoing capacity building and technical assistance for users	UNESCO, 2021; EdTech Hub, 2023
Flexibility & Scalability	Ability to adapt and grow with sector needs and technological change	Abdul-Hamid et al., 2021; World Bank, 2017

**Source: UNESCO (2021), p.18**

## **Student Information System**

Student Information Systems (SIS) have become indispensable tools in contemporary educational settings, fundamentally transforming administrative processes and decision-making capabilities (Academia ERP, 2024; Astria Learning, 2025). These comprehensive digital platforms significantly reduce staff workload while providing crucial data and performance insights that support educational leaders in making informed decisions. By digitising and centralising student data management, SIS enables institutions to execute administrative tasks with greater efficiency and accuracy than conventional paper-based methods (Academia ERP, 2024).

The core functionalities of modern SIS include streamlining student registration, automated timetable generation, real-time attendance tracking, secure academic record storage, and comprehensive student activity management throughout their educational journey. These features collectively create a cohesive digital ecosystem that supports the entire student lifecycle (Build.com.au, 2025). Research by QualCampus (2025) demonstrates that SIS implementation substantially impacts educational administration, particularly in secondary schools where the management burden is often heaviest.

A notable case study from the Metropolitan School District demonstrated how digital connectivity, achieved through the deployment of integrated systems across both school environments and stakeholder homes, transformed school-community dynamics by improving access to educational resources, enhancing communication, and fostering greater stakeholder engagement (Cassidy & Creswell, 1997; ClassLink, 2024; Consortium for School Networking, 2021; Laudon & Laudon, 2004; Element 451, 2024). This technological integration facilitated enhanced communication channels between schools, parents, administrators, and community partners, ultimately strengthening accountability frameworks, building public confidence, and fostering meaningful connectivity among all educational stakeholders (Element 451, 2024).

Despite the widespread adoption of Student Information Systems (SIS), empirical evidence directly linking these systems to improved student academic performance remains limited, with studies highlighting mixed or inconclusive results (Astria Learning, 2025; Chanda et al., 2024; Ngoma, 2009; Venkatesh et al., 2003; Wayman, 2005; Zohaib et al., 2024). A comprehensive investigation in Eastern Seaboard educational districts utilised mixed-method research, including structured interviews and electronic surveys with a representative sample of

educators and administrators, to explore this issue (Ngoma, 2009). The findings revealed that while SIS adoption is accelerating across educational institutions, there remains insufficient conclusive evidence demonstrating a direct causal relationship between SIS implementation and measurable improvements in student academic performance (Academia ERP, 2024; Astria Learning, 2025).

### **Student Information System and Administrative Effectiveness**

A Student Information System (SIS) significantly enhances administrative effectiveness in educational institutions by automating core processes such as enrolment, attendance, grade management, and communication. SIS streamlines data management, reduces manual errors, and provides real-time access to accurate student information, which improves decision-making and operational efficiency (Das et al., 2023; Kumari & Dewangan, 2024). The implementation of SIS also facilitates better communication among administrators, teachers, students, and parents, contributing to a collaborative and transparent educational environment (Das et al., 2023; Kumari & Dewangan, 2024; Nauwerck et al., 2017). Furthermore, research shows that digital transformation through SIS adoption reduces administrative workload and enhances the overall productivity of educational administrators (Nauwerck et al., 2017).

#### **Some important uses of SIS are as follows:**

**Centralised Data Management:** A Student Information System (SIS) brings all student-related data, such as enrolment, academic records, attendance, and personal information, into a single, organised digital platform. This centralisation streamlines data management, making it easier for administrators to access, update, and retrieve information efficiently. The result is a significant reduction in paperwork, data duplication, and manual errors, enabling staff to focus on more strategic tasks (Astria Learning, 2025; Classter, 2025; Rediker, 2024).

**Automation and Enhanced Productivity:** By automating routine administrative processes such as registration, grading, attendance tracking, and fee management, an SIS reduces the manual workload for both educators and administrative staff. This automation not only speeds up operations but also minimises the risk of human error, leading to greater productivity and cost savings. Staff can then dedicate more time to supporting students and improving educational outcomes (Academia ERP, 2025; Astria Learning, 2025; Classter, 2025).

**Improved Reporting and Decision-Making:** SIS platforms offer powerful analytics and customizable reporting tools that provide real-time insights into student performance, attendance, and institutional trends. These features support data-driven decision-making, allowing administrators to identify issues early, allocate resources effectively, and plan strategically for institutional growth and student success (Academia ERP, 2025; Rediker, 2024).

**Strengthened Communication and Collaboration:** Integrated communication tools within SIS platforms facilitate seamless interaction between administrators, teachers, students, and parents. Announcements, notifications, and updates can be sent efficiently, ensuring that all stakeholders remain informed and engaged. This improved communication fosters a collaborative school environment and enhances the overall educational experience (Austria Learning, 2025; EdisonOS, 2025).

**Enhanced Security and Compliance:** SIS solutions incorporate robust security features such as encryption, access controls, and regular data backups to protect sensitive student and institutional data. These measures help schools comply with data protection regulations and build trust among students, parents, and staff by safeguarding information against unauthorised access and breaches (Academia ERP, 2025; Rediker, 2024).

**A Human Resources Information System (HRIS):** It is a digital platform designed to help organisations, including educational institutions, efficiently input, store, and manage employee information within a centralised database (Abuhantash, 2023; Cflow, 2025). This system facilitates global access and visualisation of essential personnel data. Unlike traditional manual or paper-based recordkeeping, contemporary HRIS solutions automate and optimise fundamental HR functions such as payroll processing, benefits management, recruitment, and performance evaluation (Abuhantash, 2023; GetHppy, 2024; Cflow, 2025; Kavanagh, Thite, & Johnson, 2024). These capabilities lead to enhanced accuracy, improved data security, and increased operational efficiency, making HRIS a strategic tool for modern workforce management.

Recent advancements have transformed Human Resource Information Systems (HRIS) from basic record-keeping tools into comprehensive platforms that support real-time, self-service, and interactive work environments for both HR professionals and employees (Mohlala et al., 2024). Modern HRIS now integrates a wide range of functions, including time and attendance

tracking, training and development, compliance management, and workforce analytics, enabling administrators and school leaders to make informed, data-driven decisions that significantly enhance organisational effectiveness (Ungashick, 2025; Zalaris, 2025).

For school administrators, Human Resource Information Systems (HRIS) streamline various tasks, including payroll calculation, electronic recruitment, information dissemination, and staff supervision, which enhances time management, financial efficiency, and the tracking of staff performance (Abuhantash, 2023; Wandhe, 2020). The self-service features of HRIS empower employees to update their details, submit leave requests, and access payslips, thereby increasing employee engagement and reducing administrative burdens (Ungashick, 2025). In educational contexts, HRIS also facilitates teacher appraisals, duty allocations, and attendance monitoring, fostering a more transparent and accountable work environment (Chikurunhe, 2023; Mohlala et al., 2024).

The core components of a Human Resource Information System (HRIS) typically include input (data entry), data maintenance (updating and managing the database), and output (generating reports and analytics for decision-making) (Bangura, 2024; Mohanty & Tripathy, 2018). The value of an HRIS lies not only in its technology but in the validity, reliability, and utility of the information it provides to support strategic HR and institutional goals (Hyde & Shafritz, 1977; McLeod & DeSanctis, 1995).

### **Financial Information System in Education**

A **Financial Information System (FIS)** is a comprehensive digital platform designed to automate, integrate, and streamline all financial operations within educational institutions. Unlike standalone fee collection systems, FIS encompasses a wide range of financial management functions, including budgeting, accounting, payroll, procurement, asset management, and financial reporting, providing a centralised and secure environment for managing institutional finances (Cuartero & Role, 2018; GeniusEdusoft, 2024).

Modern FIS solutions support multiple payment methods such as online payments, bank transfers, and offline channels, facilitating convenient and timely transactions for parents and stakeholders while reducing administrative workload (eTutor, 2025; GeniusEdusoft, 2024). These systems automate critical processes, including fee collection, fine calculation, salary disbursement, supplier payments, and refund management, thereby minimising human errors and enhancing operational efficiency (FasterCapital, 2024; Verma et al., 2022).

## **Core Functionalities of Financial Information Systems**

### **1. Centralised Financial Management**

A Financial Information System (FIS) consolidates all financial data from various sources such as tuition fees, salaries, procurement costs, and operational expenses into a unified digital platform. This centralisation allows educational administrators to have a comprehensive, real-time view of the institution's financial status, facilitating efficient tracking, management, and reporting of resources (Cuartero & Role, 2018; Kamau & Wambua, 2024; Rediker, 2024). By integrating data into a single system, schools reduce duplication, minimise errors, and ensure consistency across financial records, which is critical for transparency and accountability.

### **2. Automation and Accuracy**

FIS automates numerous routine financial processes, including invoicing, receipt generation, payroll processing, budgeting, and payment tracking. Automation reduces the need for manual data entry, which minimises human error and accelerates financial workflows (Academia ERP, 2025; Miranji, 2017). For example, automated payroll ensures timely and accurate salary payments, while automated fee collection systems send reminders and generate receipts instantly. This increased accuracy and efficiency free up administrative staff to focus on strategic financial planning and other value-added activities.

### **3. Real-Time Reporting and Analytics**

Modern FIS platforms offer powerful reporting tools and dashboards that provide real-time insights into financial performance, budget adherence, cash flow, and outstanding payments (Kiprono & Chebet, 2025; Rediker, 2024). These analytics enable decision-makers to monitor financial health continuously, identify potential issues early, and make informed decisions to optimise resource allocation. Customizable reports can be generated for different stakeholders, including school boards, government agencies, and auditors, ensuring compliance with statutory requirements and enhancing institutional governance.

### **4. Enhanced Transparency and Compliance**

Financial Information Systems incorporate robust security features such as encryption, access controls, and audit trails to protect sensitive financial data (Njoroge & Mutiso, 2022; Otieno, 2023). These systems ensure that only authorised personnel can access or modify financial

information, reducing the risk of fraud and misappropriation. Furthermore, FIS supports compliance with financial regulations and reporting standards by maintaining accurate, auditable records of all transactions. This transparency builds trust among parents, staff, and funding bodies, and facilitates smoother external audits.

## **5. Integration with Educational Management Systems**

FIS often integrates seamlessly with other Education Management Information Systems (EMIS), linking financial data with student records, human resources, procurement, and academic modules (Wemba, 2020; World Education Forum, 2024). This integration enables holistic management of the institution by connecting financial transactions with operational activities. For example, linking fee payments with student enrolment data allows for better financial forecasting and planning. Integration also streamlines workflows and reduces data silos, improving overall institutional efficiency.

## **6. ICT Integration and Financial Sustainability**

The adoption of ICT tools within FIS significantly enhances financial sustainability by improving the accuracy, timeliness, and accessibility of financial information (Cuartero & Role, 2018; Kamau & Wambua, 2024). Automated financial systems facilitate better budget control, cash flow management, and resource utilisation, which are essential for the long-term viability of educational institutions. Research in East African schools shows that ICT-enabled financial management reduces fraud risks and improves budgeting accuracy, contributing to more effective use of public and private funds (Otieno, 2023; World Education Forum, 2024).

## **7. Challenges and Capacity Building**

Despite the benefits, challenges such as limited infrastructure, lack of user training, and concerns over data security can hinder effective FIS implementation (Miranji, 2017; Njoroge & Mutiso, 2022). To overcome these barriers, ongoing capacity building and technical support are crucial. Training administrators and staff on system use, data security best practices, and financial management principles ensures that FIS tools are used effectively and sustainably. Additionally, scalable and flexible system architectures allow institutions to adapt to changing needs and technological advances (Cuartero & Role, 2018; World Education Forum, 2024)

## **8. Future Directions and Innovations**

Emerging technologies such as artificial intelligence (AI), blockchain, and cloud computing are beginning to influence FIS development, offering enhanced security, automation, and data analytics capabilities (FasterCapital, 2024). AI-driven predictive analytics can improve financial forecasting, while blockchain can provide tamper-proof transaction records, increasing trust and transparency. Cloud-based FIS solutions offer scalability and remote access, which are particularly valuable for institutions with limited IT infrastructure. Continued innovation will further empower educational institutions to manage finances more effectively and support strategic decision-making.

### **Importance of ICT Integration in Financial Information Systems**

The integration of Information and Communication Technology (ICT) into financial management has revolutionised educational institutions' ability to maintain accurate, timely, and accessible financial records. Automated financial systems enable schools to track fee payments, generate official receipts, manage payroll, and monitor expenditures effectively, which is critical for sustainability and accountability (Cuartero & Role, 2018; Kamau & Wambua, 2024).

Research from East African educational settings highlights that ICT-enabled financial systems improve budgeting accuracy, enhance budget control, reduce fraud risks, and increase transparency by allowing parents and stakeholders to validate transactions instantly through online platforms or bank portals (Otieno, 2023; World Education Forum, 2024). The use of spreadsheet software and other digital tools within FIS supports school administrators in analysing and reporting financial data more accurately than manual methods, facilitating timely policy decisions and operational improvements (Kiprono & Chebet, 2025).

### **Challenges and Future Directions**

While FIS adoption offers significant benefits, challenges such as infrastructure limitations, user training needs, and data security concerns remain prevalent in some educational contexts (Miranji, 2017; Njoroge & Mutiso, 2022). Continuous capacity building, robust cybersecurity measures, and system scalability are essential to maximise the potential of FIS in supporting the financial health and administrative effectiveness of schools (Cuartero & Role, 2018; World Education Forum, 2024).

## **The concept of educational administration.**

According to Ahmad (2024), it revolves around the effective integration of human and material resources to fulfil the objectives of an educational institution's program. Bodalina & Mestry (2015) and Derese & Senapathy (2023) emphasise the crucial role of administration in coordinating both physical and human resources, along with educational components, to ensure efficiency in school management. School administration demands a blend of efficiency and human qualities such as sympathy, understanding, knowledge, and skill. In this context, the physical resources essential for effective administration encompass various stakeholders such as students, teachers, supervisors, administrators, and parents. Moreover, educational elements, including educational theory, curriculum, teaching methods, discipline, and the role of teachers, form integral components of school administration (Bush & Glover, 2023; DiPaola & Hoy, 2015).

These elements, when harmoniously integrated, constitute a cohesive whole, contributing to the smooth functioning of educational institutions. Overall, educational administration entails the adept coordination and integration of diverse resources and components to achieve the overarching goals of the educational program (Diksha, 2018; Nwiyi, 2018; Ogunode, 2020; Smith & Johnson, 2023).

Educational administration, as articulated by Okoroma (2016) and Osai & Kalagbor (2017), encompasses a systematic approach involving the utilisation of methods, principles, plans, and procedures to effectively achieve educational objectives. Okoroma (2016) delineates the objectives of educational administration, which include providing quality education to students, ensuring the optimal utilization of resources, fostering professional ethics and development among teachers, organizing educational programs to promote democratic citizenship, mobilizing community involvement, facilitating the organization of co-curricular activities, preparing students for various vocations and life endeavours, cultivating a scientific attitude and objective outlook, and ensuring qualitative improvement in education.

Central to the realisation of these objectives is the availability of data facilitated by the Education Management Information System (EMIS). EMIS plays a crucial role in supporting educational administration by providing accurate and timely information necessary for decision-making, planning, and resource allocation (Ahmad, 2024). Consequently, the effective implementation of educational administration objectives hinges on the efficient

utilisation of data through EMIS, enabling educators and administrators to make informed decisions and enhance the quality of education provided to students.

### **Impact of Education Management Information System and Educational Administration**

The impact of the Education Management Information System (EMIS) on educational administration in Cameroon is multifaceted and significant. EMIS has facilitated various aspects of educational administration, leading to improvements in educational planning, administration, data management, decision-making, accountability, and resource management (Nkengafac & Tchombe, 2023).

### **Educational Planning**

The implementation of Educational Management Information Systems (EMIS) has significantly contributed to enhancing the effectiveness of educational planning in Cameroon educational institutions (Nkengafac & Tchombe, 2023). Educational planning is a systematic, goal-oriented process of setting strategies, policies, and programs in advance to achieve defined educational objectives. It involves identifying goals, assessing resources, designing programs, implementing plans, and evaluating outcomes to ensure effective and efficient use of resources while addressing the needs and constraints of the educational system (Davies, 2009; Dream Education Consulting, 2024; Sta. Ana, 2025). According to Ogunode, Eyiolorunse Aiyedun, and Olatunde-Aiyedun (2021), educational planning encompasses outlining future objectives, programs, and activities in education and identifying the means to achieve them. It involves drawing out the vision, goals, and programs of education and defining various strategies to realise them within specified time frames.

Concerning the New York City Department of Education (2024) and OECD (2025), educational planning spans across various levels and dimensions, including early childhood education, primary and secondary education, higher education, special needs education, mass education, women's education, girl child education, adult education, and gender education. Additionally, it encompasses manpower planning, infrastructure planning, student planning, curriculum planning, human resource planning, and instructional materials planning (Ogunode et al., 2021). The effectiveness of educational planning is contingent upon the availability of accurate and reliable data, as noted by Ogunode (2021a). EMIS plays a pivotal role in facilitating data generation and distribution, thereby enabling educational planners to access reliable and accurate data essential for informed decision-making.

Aceng (2020) and NEMIS (2021) emphasise that EMIS empowers school administrators, managers, and educational planners to effectively plan education and make sound decisions to enhance the provision of educational services nationwide. Moreover, Tamir and Arar (2019) highlight that EMIS enables schools to plan for upgrades, maintenance, and the acquisition of necessary resources, contributing to creating a conducive learning environment and addressing infrastructure gaps. The implementation of EMIS has revolutionised educational planning in educational institutions by providing access to accurate and reliable data, empowering planners to make informed decisions, and facilitating proactive strategies to improve educational service provision and address infrastructure needs.

### **Effective Educational Administration**

Effective educational administration within the educational sector, across all levels of government, can be attributed to the proficient utilisation of Educational Management Information Systems (EMIS). Educational administration, as described by Hoy and Miskel (2001), Kimani (2010), and Ogunode (2020a), encompasses the strategic allocation and utilisation of resources to achieve predetermined educational goals. It involves the application of principles, methods, and practices to establish, maintain, and develop educational institutions in alignment with their objectives.

The integration of EMIS has catalysed transformative changes in educational administration. EMIS catalyses improved policy formulation, decision-making, and educational planning by providing timely and accurate data to education administrators. The system has facilitated a more open, accountable, and efficient management of educational resources, as noted by Danso, Adjei, and Yaokumah (2021). It fosters a culture of continuous improvement by supporting both day-to-day administrative tasks and the development of long-term initiatives. The integration of EMIS has brought about various positive changes in administrative processes within schools, as highlighted by Ogochukwu (2022). One significant advantage is the automation of routine administrative tasks, as recognised by Jurs et al. (2023). EMIS enhances communication and collaboration among administrative staff by providing a centralised platform for sharing information and coordinating activities.

Furthermore, EMIS streamlines processes such as enrolment, attendance tracking, grading, and scheduling, as noted by Kalu and Sa'ad (2018) and Peng and Pei (2022). This automation reduces manual workload, minimises errors, and allows administrative staff to focus on

strategic activities. Additionally, EMIS facilitates data-driven decision-making by providing comprehensive insights into student demographics, academic performance, and teacher effectiveness. This data-driven approach enhances the overall effectiveness of administrative processes by ensuring that decisions align with the goals and priorities of educational institutions. However, administrators need to maintain a holistic understanding of the educational context and not become overly reliant on EMIS for decision-making. While EMIS enhances efficiency and provides valuable insights, qualitative aspects critical for effective administration must not be overlooked. Therefore, a balanced approach that combines data-driven insights with contextual understanding is necessary for effective educational administration.

### **Data Management**

Poor data management has long been identified as a significant challenge within the educational sector. However, the implementation and integration of Educational Management Information Systems (EMIS) across all levels of education in Cameroon have contributed to significant improvements in addressing this issue. EMIS serves as a centralised platform that ensures the generation, analysis, storage, and dissemination of quality data to education administrators for effective planning and administration purposes. As highlighted by Balram (2018), EMIS functions as a centralised vault for collecting, organising, and storing data, thereby streamlining the data management process. Moreover, EMIS can analyse data and generate various reports based on this analysis, facilitating informed decision-making within educational institutions. The adoption of EMIS represents a fundamental shift from traditional, labour-intensive record-keeping practices to a modern and flexible system in school administration. Danso et al. (2021) emphasise that this transition has resulted in enhanced openness, accountability, and efficiency in the management of educational resources.

Furthermore, the study by Olatunde-Aiyedun, Ogunode, and Ohiosumua (2021) underscores the importance of data management, particularly in the context of a crisis such as the COVID-19 pandemic. Educational administrators rely on timely and accurate data to assess the impact of the pandemic on student learning, academic progress, and overall educational outcomes. The availability of data through systems such as the Education Management Information System (EMIS) becomes essential for informing decision-making, planning, and resource allocation in response to the evolving challenges presented by the pandemic. EMIS promotes a culture of continuous improvement within the education sector by facilitating both the day-to-day

administrative tasks of schools and the development of long-term initiatives. Studies conducted by Okeke and Ikediugwu (2021) and Ogunode and Zailani (2023) have corroborated the positive impact of EMIS in Nigerian educational institutions, particularly in ensuring effective data collection, organisation, storage, analysis, and dissemination. The implementation of EMIS in the educational sector has played a crucial role in addressing the challenge of poor data management. By providing a centralised platform for data management and analysis, EMIS has contributed to improved efficiency, accountability, and effectiveness in educational administration, ultimately enhancing the quality of education delivery.

### **Decision Making**

Educational management information systems (EMIS) have been very useful for decision-making in the educational sector. Decision-making, according to Ogunode, Pajo, and Akhmedov (2021) and Ogunode, Samuel, Audu, and Musa (2021), flows from the top level of educational administration down to the management level. Mostly, decisions in education are taken by the educational administration and managers. Effective decision-making in education depends on the availability of accurate data. Ogunode (2021) described data as the lifeline of decision-making because without the data, no meaningful decision can be taken. The deployment of Educational Management Information Systems (EMIS) in the educational sector has aided good quality decision-making that has had a positive impact on the quality of education. Mariono and Sabar (2023) noted that the school's decision-making process is strengthened and improved by the factual information provided by EMIS to decision-makers in the various educational institutions across the country. At various points across the educational system, data-driven decision-making is the primary objective of EMIS. Using this method, school administrators can track student progress, assess faculty effectiveness, and assess the institution's overall performance. At the same time, education authorities and lawmakers can use EMIS data to inform systemic changes, strategic resource allocation, and the development of evidence-based policies tailored to educational institutions' unique needs. Research by Odusanya (2019), Odhiambo (2017), and Obiakor, Oguejiofor, and Ezenwagu (2021) confirmed positive relationships between Educational Management Information Systems (EMIS) and effective decisions in educational institutions.

## **Accountability**

Accountability in educational institutions is a problem demanding immediate response (Ogunode, Obioma, & Bello, 2023). The implementation of Educational Management Information Systems (EMIS) has helped to institutionalise the culture of accountability and transparency in almost all educational institutions across the country. EMIS plays a crucial role in fostering communication and collaboration among various stakeholders in the education ecosystem that promotes accountability in resource allocation and distribution (Valery, 2020). Wangang (2023) opined that the implementation of EMIS marks a paradigm shift in educational management, moving away from traditional, manual record-keeping methods toward a more sophisticated and dynamic approach. This shift brings about increased transparency, accountability, and efficiency in the management of educational resources. EMIS not only assists in the day-to-day administrative tasks of schools but also contributes to long-term planning, fostering a culture of continuous improvement within the education sector. Mariono and Sabar (2023) also maintained that EMIS is an all-inclusive system that helps with management, monitoring, and planning at every level of the education system by collecting, combining, analysing, and distributing data and information.

## **Effective Resource Management**

Resource wastage is part and parcel of education. It is common in all educational institutions, especially at the management level. It has cost the federal and state governments a lot. The deployment of educational management information systems (EMIS) in educational management has helped to reduce educational wastage (Ogunode, Ndubuisi & Jegede, 2022). Samsuri (2021) observed that one of the key advantages of EMIS is the ability to analyse demographic data, enrolment trends, and student needs. This information enables schools to allocate teachers, classrooms, and materials efficiently, ensuring that resources match the demand and diversity of the student population. Balram (2018) noted that the purpose of EMIS is to manage the distribution and allocation of educational resources and to keep an eye on how well the institute's courses are implemented. Agung and Hidayati (2022) remarked that the implementation of EMIS has positively impacted the allocation of school resources in numerous ways. EMIS provides a systematic and data-driven approach to resource management, allowing administrators to make informed decisions.

## **Differences Between EMIS and Educational Administration**

An Education Management Information System (EMIS) and Educational Administration both play integral roles in the functioning of any educational institution, yet they operate on very different levels. EMIS is primarily a technological tool designed to collect, analyse, and distribute educational data, while Educational Administration encompasses the broader processes of planning, leading, and managing the institution. In essence, whereas EMIS provides the critical data backbone for decision-making, Educational Administration interprets that data and integrates it into a human-centred management strategy (UNESCO, 2018).

An EMIS functions as an automated system that gathers a wide range of data from student enrolment and attendance to teacher performance and resource allocation. Its main objective is to streamline the collection, storage, and processing of necessary information, thereby empowering administrators to make data-driven decisions. By transforming raw data into actionable insights, EMIS serves as a foundational element that helps optimise operational efficiency and supports national and local educational policies (UIS/UNESCO, 2024).

Educational Administration, in contrast, is a comprehensive process that involves planning, organising, directing, and controlling all aspects of an educational institution. It is a human-centred practice that requires leadership, vision, and an understanding of both policy and operational realities. Educational administrators are responsible for cultivating a positive learning environment, managing human resources, developing policies, and ensuring that the institution's overall mission is met. In this way, the Educational Administration embraces a holistic view of education management that extends beyond mere numbers (UNESCO, 2018). The main distinction between EMIS and Educational Administration lies in their functionality. EMIS is a data management tool, a backend system that compiles and processes vital information, enabling educators and policymakers to understand trends, track progress, and identify areas needing improvement. Conversely, Educational Administration utilises that information along with professional judgment to set strategic directions, make policy decisions, and solve problems that arise within the institution. In other words, EMIS informs the process, and Educational Administration drives it, creating a synergy between hard data and human oversight (UIS/UNESCO, 2024).

In practice, the impact of EMIS is seen in its ability to provide transparent and accessible data, which is crucial for accountability and continuous improvement at schools, districts, or higher education institutions. This system enables leaders to react promptly to data trends and resource demands. On the other hand, the role of Educational Administration is multifaceted, involving leadership, resource allocation, stakeholder engagement, and long-term strategic planning.

Educational administrators must balance insights from EMIS with interpersonal skills, political acumen, and a commitment to educational values, thus ensuring that technology and human decision-making work harmoniously (UNESCO, 2018).

Education Management Information System acts as the technological hub for collecting and analysing data, and Educational Administration embodies the strategic and interpersonal dimensions necessary for running an educational institution. Together, these components ensure that both data-driven insights and human-centric leadership contribute to the effective management of educational settings. This interplay not only aids in achieving operational efficiency but also fosters an environment where educational goals are met with both precision and passion (UNESCO, 2018).

**Table 2: Comparison of EMIS and Educational Administration**

EMIS	Educational Administration	
A technology-based system designed to collect, store, analyse, and disseminate educational data	The process of planning, organising, directing, and controlling all activities within an educational institution.	UNESCO (2018); UIS/UNESCO (2024); Smith & Johnson (2023)
Data management, analysis, and reporting	Leadership, policy formation, and operational management	Ahmad (2024); Bush & Glover (2023)
To provide accurate, timely, and actionable data for informed decision-making and performance improvement.	To ensure effective institutional management by integrating strategic vision, human insight, and comprehensive policy implementation.	Nkengafac & Tchombe (2023); Okoroma (2016)
Focused on digital data processes such as student information, teacher records, and resource allocation.	Encompasses a broad array of functions, including human resource management, curriculum development, stakeholder communication, and strategic planning	Wemba (2020); Diksha (2018)
Utilises digital automation, systematic data collection, and quantitative analysis.	Relies on qualitative judgment, interpersonal relations, and strategic managerial practices	UNESCO (2018); DiPaola & Hoy (2015)
Technologically driven, data-centric, and automated	Human-centred, leadership-driven, and interpersonal in nature.	UIS/UNESCO (2024); Bush & Glover (2023)
IT staff, data analysts, educational policymakers, and administrators who rely on quantitative metrics and performance indicators	Educational leaders such as principals, deans, department heads, and policymakers who blend data insights with contextual and experiential knowledge	Ogunode (2020); Hoy & Miskel (2001)

Serves as an objective tool that provides real-time, data-driven insights, thereby guiding policy adjustments, resource allocation, and targeted interventions	Uses the data (often provided by systems like EMIS) to make holistic decisions by integrating human judgment, experience, and contextual factors	Ogunode, Samuel, Audu & Musa (2021); UNESCO (2018)
Enhances transparency, accountability, and efficiency by offering real-time statistics and analytics that support evidence-based policy changes.	Shapes the overall strategic vision and operational efficiency of an institution by ensuring decisions are dynamically balanced between quantitative data and human insights	Danso, Adjei & Yaokumah (2021); Smith & Johnson (2023)
<ul style="list-style-type: none"> <li>-Automated data collection and reporting</li> <li>-Data analytics for policy and planning</li> <li>-Monitoring and evaluation support</li> <li>-Facilitates transparency and accountability</li> </ul>	<ul style="list-style-type: none"> <li>-Policy formulation and enforcement</li> <li>-Supervision of staff and students</li> <li>-Budgeting and resource management</li> <li>-Daily operational management</li> </ul>	UNESCO (2018); Okoroma (2016); Jurs et al. (2023)

Source: UNESCO, (2018,2024),p.7

## **Theoretical framework**

### **Systems theory**

The theoretical framework underpinning this paper is rooted in the General System Theory propounded by biologist Ludwig von Bertalanffy in the 1940s. Von Bertalanffy's theory conceptualises systems as complex entities composed of interconnected parts that function together as an integrated whole, much like the intricate workings of the human body (von Bertalanffy, 1968). For instance, within the human body, the nervous system collaborates with the digestive system, as well as with various organs and muscle groups, to enable individuals to carry out a myriad of physiological functions essential for survival and well-being. Crucially, von Bertalanffy's theory highlights the interdependence and interconnectedness of system components, emphasising that the failure or malfunctioning of any one part can disrupt the entire system's functionality. This concept is illustrated by the analogy of a broken leg impairing an individual's mobility and, consequently, diminishing their overall productivity and functioning. Conversely, optimal health and functionality are achieved when all components of the system operate harmoniously and synergistically (Mella, 2014).

Furthermore, von Bertalanffy's theory posits that systems are not isolated entities but are intricately connected to and influenced by their external environment. This interaction with the environment can have profound effects on the functioning and dynamics of the system, shaping its performance and outcomes (von Bertalanffy, 1968; Mella, 2014). In the context of this work, General System Theory offers a valuable conceptual lens through which to understand the dynamics of secondary education in Cameroon. Secondary education can be viewed as a complex system comprising various interconnected components, including curriculum development, teaching methodologies, student learning outcomes, administrative processes, and resource allocation (Wemba Valory, 2020).

A critical aspect relevant to this study is the role of the Education Management Information System (EMIS) as a key component within the broader system of secondary education in Cameroon. EMIS serves as a centralised information management system that facilitates the collection, storage, analysis, and dissemination of data related to educational planning, administration, and decision-making. By providing timely and accurate information, EMIS enables education stakeholders to make informed decisions, allocate resources effectively, and monitor progress toward educational objectives (Cuartero & Role, 2018; UNESCO, 2020).

In essence, von Bertalanffy's General System Theory provides a comprehensive framework for understanding the complex and interconnected nature of secondary education in Cameroon. By applying this theoretical perspective, this paper explores the role of EMIS within the larger system of basic education and examines its impact on educational management and outcomes. Systems theory thus provides a foundational framework for understanding how EMIS enhances administrative effectiveness in educational institutions. It posits that organisations function as interconnected systems where components interact dynamically to achieve shared goals. The application of this theory to EMIS illustrates how digital tools can synchronise administrative functions, improve data flow, and support strategic decision-making (Asio et al., 2022; Mohlala et al., 2024).

### **Interdependence of Components**

Systems theory emphasises that EMIS is a complex system comprising interdependent parts:

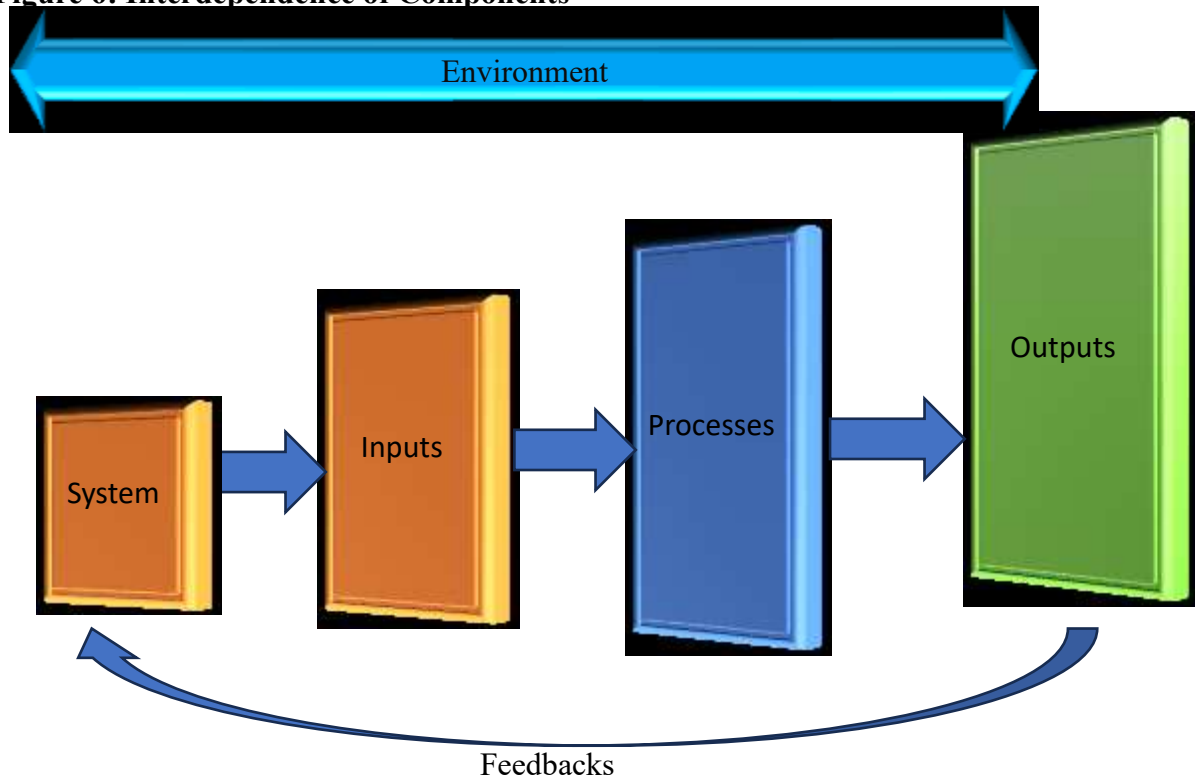
Inputs: Data collection (student enrolment, staff records, financial data).

Processes: Validation, integration, and analysis of data.

Outputs: Reports for decision-making (e.g., resource allocation, policy adjustments).

Feedback: User responses to refine system performance. In education, inefficiency in one component (e.g., poor data processing) disrupts the entire system, undermining administrative outcomes

**Figure 6: Interdependence of Components**



**Source: UNESCO (2012).**

### **Holistic Management**

The theory underscores that EMIS must harmonise all subsystems to function effectively. For example: Stakeholder Integration; Administrators, teachers, and policymakers must collaborate to align EMIS outputs with institutional needs.

**Alignment with Infrastructure:** EMIS must adapt to educational technological and policy environments to avoid resistance or underutilisation. This holistic approach ensures that EMIS transcends being a mere tool and becomes a strategic asset for administrative coherence.

### **Open Systems and Adaptability**

EMIS operates as an **open system**, interacting with external factors like policy changes or ICT advancements. For instance, ICT Integration; Advanced tools (e.g., cloud-based platforms) improve data accessibility but require continuous staff training.

**Policy Compliance:** EMIS must evolve to meet national education standards, ensuring relevance and compliance.

## **Feedback Loops for Continuous Improvement**

Systems theory highlights feedback mechanisms to refine EMIS functionality: User feedback from administrators in education can identify gaps (e.g., cumbersome interfaces) and drive iterative improvements. Data-driven insights from EMIS reports enable adaptive strategies, such as reallocating resources to underserved schools.

## **The theory of Diffusion of Innovations (DOI)**

The theory of Diffusion of Innovations (DOI) is the masterpiece of a communication scholar and sociologist, Everett M. Rogers (1931–2004). It originated in communication to explain how, over time, an idea or product is stimulated and diffuses through a specific population or social system. According to Rogers (2003, p. 5), diffusion is “the process by which an innovation is communicated through certain channels over time among the members of a social system.” Thus, diffusion is regarded as a special type of communication in which participants create and share information to reach a mutual understanding. The result of this diffusion is that people, as part of a social system, adopt a new idea, behaviour, or product. An innovation is “an idea, practice, or object perceived as new by an individual or other unit of adoption” (Rogers, 2003).

Most of the new ideas, according to the author, are technological innovations. Rogers defines a technology as “a design for instrumental action that reduces the uncertainty in the cause-and-effect relationships involved in achieving a desired outcome.” Rogers (1995) orchestrated five decades of diffusion research and selected five factors of innovations that are related to the adoption of innovations (Sonnenwald, Maglaughlin, & Whitton, 2001). Rogers et al. confirmed these attributes in domains such as medicine, engineering, and airline reservation information systems.

The five factors that influence the adoption of an innovation are: relative advantage, compatibility, complexity, trialability, and observability. These factors (attributes) are used as a theoretical foundation to evaluate collaboration technology. Rogers et al. ascertain that the relative advantage innovation attribute is the degree to which an innovation surpasses current practices. Sonnenwald et al. (2001) have observed that computer-supported cooperative work (CSCW) applications often require additional work without providing obvious benefits.

Relative advantage can be measured in terms of variables such as quality of work outcomes, added convenience, usefulness in accomplishing work goals, and social prestige provided by the innovation. Integrating this theory with our focus on Education Management Information System (EMIS), we shall select questions for this scale from instruments measuring perceived system usefulness, credibility, and use of information provided by EMIS to school administrators for effective and efficient decision making. School administrators play a vital role in the successful implementation and use of EMIS in secondary schools. As concerns the adoption of technological innovations such as EMIS, decision-making processes can remarkably affect administrative effectiveness and overall school performance.

Compatibility seeks to explain how consistent the innovation is with the values, experiences, and needs of the potential adopters' existing values, past experiences, and needs. It includes individual, group, and organisational goals, needs, culture, and structure. It is concerned with the agreement/differences between a group's traditional work patterns and the work patterns required by the innovation. CSCW research also stresses the importance of compatibility for CSCW applications.

### **The Five Key Factors Influencing Adoption**

**Relative Advantage:** The extent to which the innovation outperforms existing methods. Innovations must demonstrate increased efficiency, convenience, quality of outcomes, and added social prestige to be considered advantageous. In an educational setting, EMIS adoption is largely determined by its ability to enhance data management, credibility, and decision-making among school administrators (Sonnenwald et al., 2001).

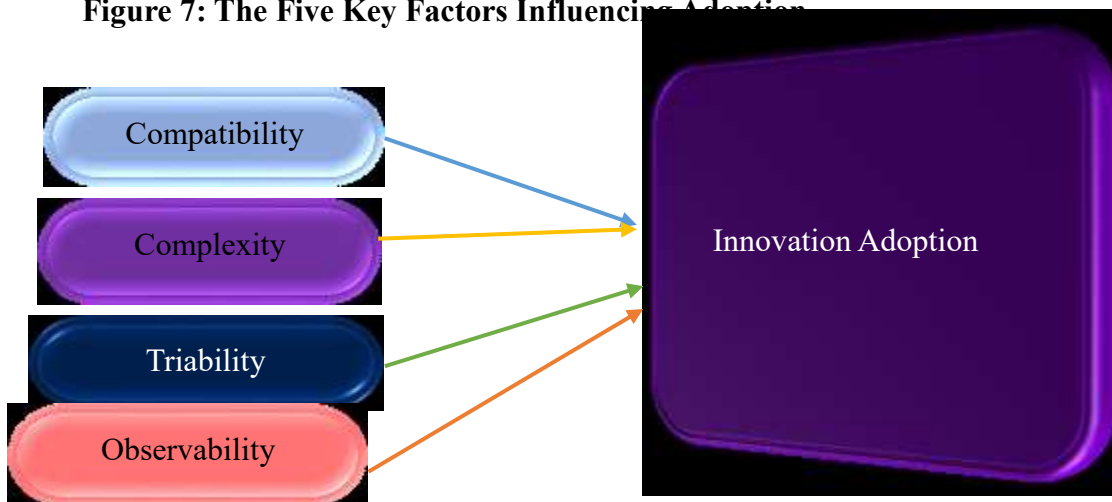
**Compatibility:** How well the innovation aligns with the values, experiences, and needs of users. This includes factors such as organisational culture, work practices, and technological infrastructure. A system like EMIS must be compatible with existing administrative practices to encourage widespread adoption among educators and policymakers (Sonnenwald et al., 2001).

**Complexity:** Refers to the difficulty of learning, understanding, and using a new system (Fotoh, 2022). If an innovation is perceived as complex or cumbersome, adoption rates tend to be lower. Research in usability engineering emphasises the importance of simplifying human-computer interactions to minimise complexity (Sonnenwald et al., 2001).

**Trialability:** The degree to which the innovation can be tested before full adoption. Trialability helps users assess the effort required and risks involved, including ease of recovery from system errors and cost implications. In education, allowing administrators to experiment with EMIS functionalities can encourage wider acceptance (Rogers, 2003).

**Observability:** The visibility of the innovation's benefits and outcomes. Grudin (cited in Sonnenwald et al., 2001) emphasises that users need clear evidence of the practical results of a collaborative technology before committing to adoption.

**Figure 7: The Five Key Factors Influencing Adoption**



Source: Sonnenwald et al., 2001

Despite the differences with individual preferences and context, in terms of specific values, needs, and work practices, varied collaboration technology should, ideally, be compatible with fundamental or general values, needs, and work practices. To measure compatibility, it needs to determine the satisfaction in the experiences with communication technology and user needs related to general system qualities, such as reliability and response time. Complexity refers to the perceived difficulties of learning to use and understand a new system or technology. When a system is perceived as difficult to understand, learn, and use, it will not be adopted (Fotouh, 2022). Research in usability engineering emphasises the importance of reducing complexity in human-computer interaction (Sonnewald et al., 2001). The extent to which the innovation can be tested or experimented with before a commitment to adopt is made involves the degree of effort required and the risk involved in observing and participating in small-scale demonstrations of the system, including easily recovering from operations using the systems and the costs involved in reversing the decision to adopt. Experimenting with and exploring system features is also a component of usability engineering.

Observability is the extent to which the innovation provides tangible results. Users need to develop a clear understanding of collaboration technology before they will adopt it (Grudin, cited in Sonnewald et al., 2001). Observability has been operationalised as “results demonstrability,” that is, the ease of telling others the consequences or results of using information technology. Observability also includes visibility, that is, the degree to which the results of an innovation are visible to others.

The Diffusion of Innovation theory offers and examines the factors that should be acquired by new technology to permit its adoption in school administration. The Diffusion of Innovation theory has been extensively used to understand the adoption and implementation of various educational technologies, including Education Management Information Systems (EMIS) in public secondary schools in the Mfoundi division. The diffusion channel plays a fundamental role in administrative processes like decision-making. Effective communication strategies are crucial in enhancing awareness and understanding amongst stakeholders. School administrators should use EMIS infrastructures to diffuse information to teachers, students, and parents, given that they make up a school, which is a social system. The diffusion innovation theory, in its perception of relative advantage, also contributes to this study. According to this perception, school administrators will likely implement an innovation if they perceive it to offer advantages over an existing practice. In other words, school administrators will adopt and implement EMIS over the manual system with the advantages it offers, like improved data accuracy, streamlined processes, and enhanced decision-making capabilities, leading to administrative effectiveness. This perception of the relative advantages to be obtained is also defended by the Technology Acceptance Model (TAM) (Fotoh, 2022; Luis et al., 2020). The literature states that compatibility between IT and its users’ values is determinant for acceptance and use. Wayne (2019) outlines the limitations of innovation diffusion theory as follows:

Much of the evidence for this theory, including the adopter categories, did not originate in public health, and it was not developed to explicitly apply to the adoption of new behaviours or health innovations.

It does not foster a participatory approach to the adoption of a public health program.

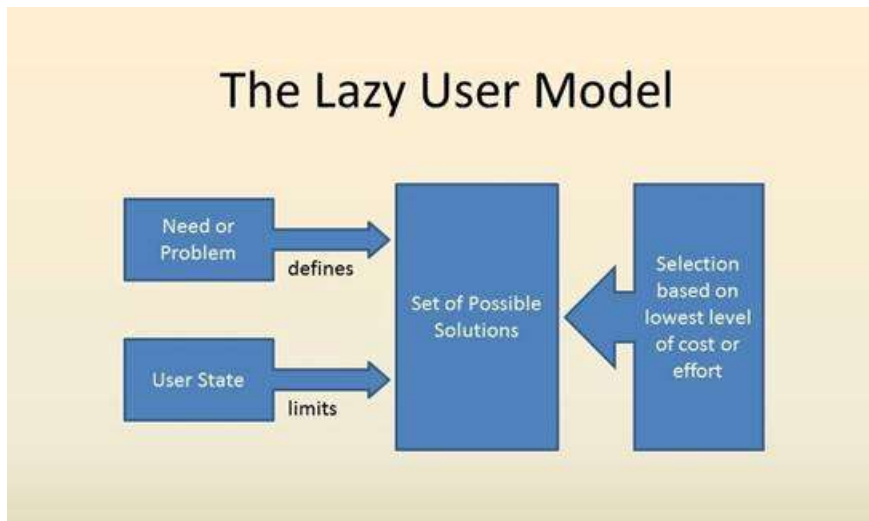
It works better with the adoption of behaviours rather than cessation or prevention of behaviours.

It does not take into account an individual's resources or social support to adopt the new behaviour (or innovation).

### **Lazy User Model (LUM)**

Collan (2007) presented the Lazy User Model (LUM), which was further developed by Collan and Tétard in 2007. The philosophy of the model was to insist on the role of the user in the technology acceptance process, where the majority of the current popular models are technology-focused. The Lazy User Model takes the needs and characteristics of the user into consideration and even further sees them as the main players in the technology acceptance and perhaps choosing procedure. According to the LUM, a user is likely to choose the solution that demands the least effort (Collan & Tétard, 2007; Collan & Tétard, 2009). The LUM relies upon a parsimonious, Occam's razor approach, suggesting technology users are lazy and will often select a solution to their problem(s) that is easiest for them to achieve. This principle of least effort that the LUM relies on can be found in works on a variety of topics such as physics (Zipf, 1949), linguistics (Cancho & Solé, 2003), musical composition (Zanette, 2006), and medicine (Reichle et al., 2000). The user's need is an "explicitly specifiable want," either tangible or intangible, that can be fulfilled completely (Collan & Tétard, 2009, p. 3). Therefore, the user needs to define the group of possible solutions that will solve a problem. The lazy user theory of solution selection ascertains that the user will choose the solution that requires the least effort. This demands that we describe what effort is and how we can order the amount of effort that different solutions require. Efforts can be in the form of time used, money used, energy used (physical work, mental work), or a combination of all.

**Figure 8 : Lazy User Model (LUM)**



Source: Collan and Tétard 2009.p3

#### Contribution of the theory

The lazy user model acknowledges the fact that EMIS should consider the needs of the users and become simple and interactive to the users to encourage effective use and adoption. Regarding the complexity of information needed in school administration, school administrators need a user-friendly technology that demands less effort to use and for decision-making. Educational administrators will effectively use and successfully adopt EMIS in administrative processes if it is user-friendly. This can significantly improve and enhance administrative effectiveness in secondary schools.

## Empirical Review

### Student Information Systems (SIS) and Administration Effectiveness

Recent studies have consistently demonstrated the positive impact of Student Information Systems (SIS) on administrative efficiency in educational institutions. Ahmed (2018) reported high MIS utilisation in financial decision-making, suggesting regional and infrastructural differences influence system adoption. Johnson and Lee (2021) conducted a mixed-methods study examining how SIS adoption influences administrative workflows in secondary schools. Their findings indicated that SIS significantly enhances centralised data management, streamlines communication among staff, and optimises various administrative processes. This

research aligns closely with the present study's focus on how school administrators leverage SIS to improve decision-making and operational effectiveness.

In a related investigation, Kimani et al. (2023) studied the role of Education Management Information Systems (EMIS) in managing student information in public secondary schools. Using a pragmatic mixed-methods approach, their study revealed a strong correlation between EMIS use and improved school management, including tracking attendance, academic performance, and student discipline. Despite government policies promoting EMIS adoption, many schools still rely on manual record-keeping, underscoring the need for continuous system improvements. This finding supports the current study's objective to assess how SIS enhances student administrative activities.

Mwale and Banda (2022) evaluated the Student Online Management System (SOMS) at a major university, employing both qualitative and quantitative methods, including surveys and interviews. The study highlighted that SOMS primarily facilitates online registration and admissions, with additional features such as access to examination results and financial information. While students appreciated the reduction in registration time, challenges such as server overloads, high internet costs, and infrequent system updates were noted. The authors recommended that institutional ICT departments prioritise addressing these issues to enhance system usability and student satisfaction. This study is pertinent to the current research as it explores the extent of SIS utilisation for administrative efficiency.

A comprehensive desk study by Patel and Hernandez (2020) explored the benefits and challenges of EMIS implementation, concluding that these systems improve administrative tasks such as scheduling and record-keeping, and enhance school quality by providing timely access to student behaviour, attendance, and performance data. They also identified barriers, including resistance to change, inadequate infrastructure, limited technical skills, and data privacy concerns. Addressing these challenges is crucial for maximising EMIS benefits, a theme central to the current research.

Okoro et al. (2024) examined the use of Management Information Systems (MIS) by secondary school administrators and found limited application in student personnel and financial management. Their findings revealed that many schools do not utilise online admission processes, digital result processing, or electronic attendance tracking, often relying on outdated methods such as spreadsheets and manual dissemination of information. The study

recommended targeted training workshops to enhance MIS adoption, echoing similar calls in previous literature.

A study by Yilmaz (2019) analysed the implementation of an E-School SIS in Turkey, concluding that such systems enable administrators and policymakers to make faster, more accurate decisions, thereby allowing educators to focus more on teaching and student learning needs. However, the lack of participant involvement in data collection pointed to a research gap, which the present study addresses through empirical data gathering.

### **Human Resource Information Systems (HRIS) and Administration Effectiveness**

Recent scholarship underscores the transformative role of Human Resource Information Systems (HRIS) and Education Management Information Systems (EMIS) in enhancing the operational efficiency and strategic management of educational institutions. For instance, **Al-Hamad et al. (2023)** emphasise the strategic importance of HR interventions in faculty development, diversity, and leadership. Their review finds that robust HR practices supported by digital systems promote continuous professional growth, foster inclusive environments, and cultivate leadership, all of which are vital for institutional adaptability and academic excellence. The authors advocate for a more integrated and strategic approach to HR in education, leveraging technology to enhance faculty performance and organisational change.

Saputri et al. (2024) demonstrate that HRIS adoption in higher education significantly streamlines HR processes such as payroll, recruitment, and performance evaluation by automating routine administrative tasks, reducing errors, and enabling HR professionals to focus on strategic initiatives. Their systematic review highlights that HRIS not only improves the accuracy and accessibility of employee data but also supports data-driven decision-making, ultimately contributing to more effective personnel administration and resource allocation. However, the authors note that successful HRIS implementation requires careful planning, integration with existing systems, and ongoing user training to overcome challenges like high initial costs and resistance to change.

Turning to EMIS, recent global analyses by OECD (2023) and UNESCO (2023) reveal that digital information systems are increasingly central to educational planning, resource management, and policy formulation. EMIS platforms provide real-time data on student enrolment, teacher qualifications, infrastructure, and learning outcomes, enabling administrators to identify gaps, prioritise interventions, and align strategies with national and

international goals such as the Sustainable Development Goals. OECD's Digital Education Outlook further notes that while the digital transition in education has accelerated particularly since the COVID-19 pandemic, true digital transformation requires not just the adoption of new tools, but a reimagining of educational processes to personalise learning and enhance system-wide effectiveness. Empirical studies also highlight the practical benefits and challenges of EMIS at the institutional level. For example, the integration of EMIS in school management has been linked to improved planning, more efficient use of resources, and greater transparency in decision-making. However, issues such as insufficient digital infrastructure, limited training, and lack of ongoing technical support remain significant barriers, especially in resource-constrained settings (UNESCO, 2023).

Furthermore, operational efficiency has become a top priority for HR professionals in education, with many institutions turning to digital solutions to "do more with less" amid resource constraints. The adoption of HR and EMIS technologies is seen as a strategic response to labour shortages and budget pressures, enabling schools to automate routine tasks, improve data accuracy, and support more effective leadership and management (NEOGOV, 2023). Despite these advances, there remain research gaps concerning the specific use and impact of EMIS and HRIS at the secondary school level, particularly in local contexts. Future research should explore how these systems can be tailored to support administrative effectiveness and educational quality in diverse educational environments.

### **Financial Information Systems**

Studies highlight the transformative impact of **Financial Information Systems (FIS)** in education, emphasising significant improvements in financial management efficiency, transparency, and accountability. FIS encompass not only fee collection but also budgeting, payroll, procurement, reporting, and overall financial governance, providing a comprehensive platform for educational financial health (Aryani, 2023; Danlami, 2022). Darshana et al. (2024) demonstrated that web-based financial management systems rectify inefficiencies inherent in manual processes by offering centralised platforms for payment tracking, financial reporting, and regulatory compliance. These systems enhance operational efficiency and ensure timely revenue collection, which is critical for sustaining educational programs and infrastructure.

Sipenji, Tibbs, and Sindani (2024) found that adopting automated financial systems significantly improved accountability in public secondary schools. Automated workflows

reduced manual errors, streamlined fee collection, and improved the accuracy and timeliness of financial reporting (Rathore et al., 2025; Samrit et al., 2025). Digital platforms, including mobile money and online payment gateways, facilitated better documentation, minimised revenue leakage, and simplified payment tracking for parents and administrators alike (JETIR, 2023). Ge (2024) observed that implementing student financial management systems in Chinese higher education institutions led to more accurate record-keeping, enhanced interdepartmental data sharing, and improved internal controls. However, challenges such as fragmented legacy systems and the need for unified, scalable platforms remain obstacles to maximising FIS benefits (Aryani, 2023).

The role of technology in addressing traditional financial management challenges is well documented. Digital financial systems automate payment processing, reduce administrative burdens, and provide real-time analytics for forecasting trends and identifying bottlenecks (Danlami, 2022; Ngugi & Osano, 2018). These systems promote cashless payments, improve accessibility, and foster financial responsibility among students and families (ET Government, 2024). Flashaid (2025) highlights that smart technologies integrated into FIS tackle operational challenges such as high payment default rates, delays, and administrative overload. Features like digital payment gateways, mobile payment apps, and self-service portals enable convenient and secure payments. Automated communication tools and AI-driven reminders reduce missed payments and manual follow-ups, enhancing scalability and security while significantly lowering administrative workload.

Case studies from Facts Management (2024) reveal that schools implementing automated financial systems achieved remarkable results: over 98% family enrolment in payment plans, delinquency rates under 1.5%, a 15% reduction in overdue fees, and an 80% decrease in manual transactions. These improvements free administrative staff to focus on educational priorities rather than payment collection. Furthermore, describe how online financial management systems provide user-friendly interfaces for **Kirubadevi et al. (2023)** administrators, students, and parents. These systems support detailed student financial records, customizable fee structures, and integration with secure online payment gateways. Automated reminders and comprehensive financial reporting enhance collection efficiency and provide valuable insights for institutional budgeting and planning.

## **Gaps in the study of Related Literature Review.**

### **Limited Integration and Data Accuracy Challenges**

Despite the recognised importance of EMIS in improving educational administration, many studies highlight persistent issues with data accuracy and system integration. In Mfoundi Division, data inaccuracies and fragmented reporting systems undermine the reliability of EMIS outputs, limiting its effectiveness in decision-making and resource allocation (Sand, 2023). This gap reflects a broader challenge where EMIS implementations suffer from a lack of interoperability between modules, causing duplication and inconsistent data that affect school management (Wemba, 2020). Furthermore, poor data quality reduces stakeholders' confidence in the system, leading to underutilization and ineffective policy formulation (Adam & Mitchell, 2024). Addressing these integration and accuracy challenges remains critical for EMIS to fulfil its transformative potential in educational management.

### **Inadequate Infrastructure and Technical Support**

Several studies report that insufficient technological infrastructure and a lack of technical support hinder EMIS implementation in secondary schools. In the Mfoundi Division context, many schools face unreliable internet connectivity, limited access to computers, and frequent power outages, which disrupt EMIS usage (Ezenwaohaetorc, 2023). Moreover, technical support is often unavailable or insufficient, leaving school administrators unable to troubleshoot system issues promptly (Ezenwaohaetorc, 2023). This infrastructural gap restricts the continuous and effective use of EMIS, especially in resource-constrained settings. Without addressing these foundational challenges, EMIS cannot operate optimally or support sustained improvements in administrative effectiveness.

### **Human Capacity and Training Deficiencies**

A major gap identified in the related literature is the lack of adequate training and capacity-building for users of EMIS. Many teachers and school administrators in Mfoundi Division lack the necessary skills to operate EMIS effectively, resulting in underutilization or misuse of the system (Tambe, 2021). Training programs are often irregular, insufficiently tailored to user needs, or absent altogether, which contributes to resistance or low adoption rates (Tambe, 2021). This human capacity gap limits the ability of schools to leverage EMIS data for evidence-based decision-making and hampers improvements in educational administration.

Strengthening continuous professional development and technical training is essential to bridge this gap.

### **Organisational and Policy Constraints**

Research also points to organisational and policy-level barriers that impede EMIS effectiveness. In Mfoundi Division, unclear institutional frameworks, weak coordination among educational stakeholders, and a lack of supportive policies reduce the system's impact on school administration (Wemba, 2020). Additionally, insufficient stakeholder engagement and limited accountability mechanisms hinder the integration of EMIS data into routine decision-making processes (Adam & Mitchell, 2024). These organisational gaps highlight the need for stronger governance structures and policy reforms that promote transparency, collaboration, and data-driven management in education.

### **Limited Use of EMIS Data for Decision-Making**

Although EMIS collects vast amounts of educational data, its actual use in improving administrative decisions remains limited. Studies reveal that in many secondary schools, including those in Mfoundi Division, EMIS data is often underutilised due to delays in data processing, lack of timely feedback, and difficulties in interpreting complex reports (Tambe, 2021). This results in missed opportunities for proactive management, resource optimisation, and targeted interventions. Enhancing data literacy among school leaders and establishing clear protocols for data use are necessary to close this utilisation gap and maximise EMIS benefits.

# CHAPTER THREE.

## RESEARCH METHODOLOGY

This chapter outlines the research procedures employed in this study, focusing on the collection, organisation, analysis, and interpretation of data. It also addresses other pertinent aspects structured under the following sub-sections: research design, population of the study, sample and sampling techniques, instrumentation, validity and reliability of instruments, data collection procedures, data analysis methods, and ethical considerations.

### **Research Design**

This study adopted a quantitative cross-sectional research design to examine how Educational Management Information Systems (EMIS) influence administrative effectiveness in secondary schools. This design allows the researcher to collect data at a single point in time across a diverse set of secondary schools in Mfoundi division, thereby providing a snapshot of EMIS usage and its perceived impact on educational management. Quantitative research is ideal for this study because it emphasises objectivity, statistical validation, and the ability to analyse patterns across large data sets (Creswell & Creswell, 2023). (Octaviany, Rahman, & Mudjisusatyo, 2023). The cross-sectional design facilitated the comparison of different administrative roles, principals, vice principals, and Bursars across both public and private secondary schools in Mfoundi Division. This structure allowed for the identification of differences in EMIS utilisation and effectiveness relative to variables such as school type, technology infrastructure, and administrative hierarchy. According to Bell, Bryman, and Harley (2022), such a design is particularly suited for educational environments where practices and perceptions may vary considerably between contexts. This structured approach ensures that the research findings are replicable and can inform policy decisions and educational management practices (Bessonova & Gamage, 2024).

Moreover, the study employed a correlational element within the quantitative design, enabling it to assess the strength and direction of relationships between key EMIS components (SIS, HRIS, FIS) and indicators of administrative performance. This was supported through statistical tools such as ordinal regression, ensuring that the findings were not only descriptive but inferential, allowing the researcher to make data-driven generalisations about the population under study. Furthermore, the quantitative design supports the use of standardised instruments such as questionnaires, which enhance data reliability and validity. The statistical

analysis of collected data provides a rigorous basis for evaluating the effectiveness of EMIS in improving administrative functions such as record-keeping, decision-making, and resource management. This methodological rigour is essential for advancing knowledge in educational technology implementation in Cameroon’s secondary education sector (Li, 2023).

According to Martinez and Lee (2023), qualitative research is exploratory and flexible, aiming to provide an in-depth understanding of phenomena through narrative and descriptive data collected via interviews, observations, and open-ended questionnaires. In contrast, quantitative research emphasises systematic, standardised data collection and statistical analysis to test hypotheses and generalise findings.

**Table 3: summarises of these approaches.**

<b>Quantitative Research</b>	<b>Source</b>
Objective knowledge	American University SOE Online (2024)
Generalizable and hypothesis-testing	American University SOE Online (2024); AwardForce (2025)
Structured and controlled	American University SOE Online (2024); GCU Blog (2021)
Random sampling	American University SOE Online (2024); AwardForce (2025)
Structured data collection	American University SOE Online (2024); AwardForce (2025)
Numerical and statistical data	American University SOE Online (2024); AwardForce (2025); Eikipub (2023)
Statistical analysis	American University SOE Online (2024); AwardForce (2025); Eikipub (2023)

Source: Adapted from Martinez & Lee (2023),p24

### **Area of Study**

The research was conducted in Mfoundi Division, a major administrative zone within the capital city of Yaoundé, Cameroon. The division is subdivided into seven localities and represents a diverse educational landscape comprising both public and private secondary schools. The region’s schools vary in size, resources, infrastructure, and access to digital tools, making it an ideal setting for examining EMIS in practice (Ekane, 2021). Mfoundi Division’s selection is also justified by its role as a pilot zone for several educational reforms and ICT integration programs. Given its status as the political and administrative capital, schools in this

region often receive early exposure to education technologies and have diverse administrative frameworks that support or hinder the adoption of EMIS tools. This provides a rich site for analysing how contextual differences affect the functionality and effectiveness of EMIS. Additionally, the region's population density, access to internet connectivity, and presence of both elite and under-resourced schools create opportunities for comparative analysis. By sampling schools across urbanised and peri-urban segments of Mfoundi, the study enhances the validity of its findings and offers practical recommendations that are scalable across similar educational contexts in Cameroon.

### **The target population**

As defined by researchers like Kumar (2023) and Mugenda and Mugenda (2020), the target population should possess characteristics relevant to the problem being studied, ensuring that the findings can be generalised meaningfully to this group. The target population comprises all principals, vice principals, and bursars in public and private secondary schools within Mfoundi Division. These groups are key stakeholders responsible for school management and the operational use of EMIS in administrative tasks such as student data management, human resource tracking, and financial operations (Boateng & Mensah, 2023). A total of 184 administrators from 41 public and private secondary schools formed the broader population. These schools were carefully selected to reflect diversity in ownership (public/private), ICT capacity, and enrolment size. Such heterogeneity was essential for assessing whether variations in EMIS integration influence administrative effectiveness differently depending on contextual realities.

By targeting those directly involved in the day-to-day functioning of school management systems, the study ensures that collected data is relevant, reliable, and reflective of real-world administrative practices. The diversity of roles represented in the sample also enabled the study to analyse how different levels of leadership interact with various EMIS modules, offering a multi-dimensional understanding of system performance.

**Table 4: The distribution of the population across the schools.**

Sub division	School	N° of Principals	N° of Vice Principals	N° of Bursars	Total
Yaounde I	GBHS EMANA	1	3	1	5
	GBHS Nkol-Eton	1	3	1	5
	Elig-Essono High School	1	2	1	4
	GTHS Nsam	1	3	1	5
	College Prive Laic La Victoire	1	3	1	5
	Saint Andre school complex	1	2	1	4
Yaounde II	Lycee de Tsinga	1	3	1	5
	Lincoln Bilingual College	1	2	1	4
	College Rosa Parks	1	2	1	4
	Lycee technique de Yaounde II	1	3	1	5
	College Elohim	1	3	1	5
	Lycee de la cite verte	1	2	1	4
Yaounde III	Lycee de Biyem-Assi	1	3	1	5
	Lycee de Nsam-Efoulan	1	2	1	4
	English High School	1	2	1	4
	Lycee bilingue d'application.	1	2	1	4
	College Diderot	1	2	1	4
	Frazati Bilingual College	1	3	1	5
Yaounde IV	Lycee bilingue d'Ekounou	1	3	1	5
	Lycee d'Odza	1	2	1	4
	Shakespear Bilingual College	1	2	1	4
	College de la Mefou	1	2	1	4
	College Bilingue Yondo	1	3	1	5
	College Frantz Fanon	1	2	1	4
Yaounde V	Lycee bilingue de Yaounde	1	3	1	5
	Lycee de Ngoussou Ngoulmekong	1	3	1	5
	College Lay Privy of Hope	1	2	1	4
	Bilingual High School of Essos	1	2	1	4
	College Foche	1	3	1	5
	Lycee de Nkolmesseng	1	2	1	4
Yaounde V I	Lycee bilingue d'Etoug-Ebe	1	3	1	5
	Lycee bilingue de Mendong	1	3	1	5
	Me Vick Bilingual Grammar School				
	Etoug-Ebe	1	2	1	4
	City Bilingual Academy	1	2	1	4
	Mario Academic Complex, Mendong	1	2	1	4
Yaounde VII	Lycee bilingue d'Ekorezok	1	3	1	5
	Lycee classique de Nkolbisson	1	3	1	5
	Lycee technique de Nkolbisson	1	3	1	5
	Yona School Complex	1	2	1	4
	Complex Scolaire Thecla	1	2	1	4
	College Venue	1	3	1	5
<b>TOTAL</b>		<b>41</b>	<b>102</b>	<b>41</b>	<b>184</b>

Source: Research data: 2025.

## **Sample population and sampling technique**

The sample size of the population was determined by using the Krejcie and Morgan (1970) sample determination table, from a target population of 184, arriving at a sample size of 123 respondents. These included 30 principals, 63 vice principals, and 30 Bursars. This sample size ensured statistical power while maintaining feasibility for fieldwork within the study's timeframe (Octaviany et al., 2023). A stratified random sampling technique was adopted to ensure balanced representation across administrative roles and school types. By stratifying the population based on role and ownership (public/private), the researcher minimised sampling bias and ensured that each subgroup's perspective was adequately captured (Bryman, 2021; Kevin, 2022). Within each stratum, schools and respondents were selected randomly to preserve objectivity and improve generalizability. Random selection within each stratum ensured that every eligible administrator had an equal chance of inclusion, enhancing the study's fairness and validity. This approach also facilitates subgroup analysis, allowing the study to compare EMIS usage and administrative effectiveness across different administrative roles (Bessonova & Gamage, 2024).

## **Data Collection Method**

Data collection was conducted using structured questionnaires designed to gather quantitative information on EMIS usage and administrative effectiveness. Questionnaires are effective for collecting large amounts of data efficiently and allow for standardised responses that facilitate statistical analysis (Johnson & Smith, 2023). The questionnaires were distributed both physically and electronically to accommodate respondents' preferences and increase participation rates. Clear instructions and assurances of confidentiality were provided to encourage honest and accurate responses (Mensah & Boateng, 2023). Additionally, follow-up reminders and support were provided to maximise response rates and data completeness. This multi-modal approach to data collection helped mitigate common challenges such as non-response and incomplete data, ensuring the robustness of the dataset (Nguyen, 2024).

## **Instrument for Data Collection**

The primary instrument was a Likert-scale questionnaire divided into four sections: demographic information, EMIS usage, administrative effectiveness, and open-ended comments. The Likert scale ranged from 1 (Strongly Disagree) to 4 (Strongly Agree), enabling nuanced measurement of respondents' perceptions and experiences (Bessonova & Gamage,

2024; George & Mallery, 2019). Section B assessed the frequency and extent of EMIS functionalities used by administrators, including data entry, report generation, and decision support. Section C measured indicators of administrative effectiveness such as timeliness, accuracy, and transparency in school operations (Li, 2023). The inclusion of open-ended questions allowed respondents to provide qualitative insights, enriching the quantitative data and offering context to the statistical findings. This mixed format enhances the instrument's comprehensiveness and relevance to the study objectives (Octaviany et al., 2023).

### **Instrument Structure and Purpose**

The instrument consists of 40 statements divided into four thematic sections:

- A: Student Information System (SIS) Usage (Items 1–10)
- B: Human Resources Information System (HRIS) Usage (Items 11–20)
- C: Financial Information System (FIS) Usage (Items 21–30)
- D: Administrative Effectiveness (Items 31–40)

Each item is rated on a 4-point Likert scale: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) And Administrative Effectiveness: VE=Very Effective, E=Effective, LE=Less Effective and IE=Ineffective. This scale encourages respondents to take a clear stance, minimising neutral or ambiguous responses.

### **Sampling and Respondent Selection**

**Target Population:** The survey targets school staff members who interact with or are knowledgeable about the respective information systems and administrative processes. This includes principals, vice principals, and bursars.

**Sampling Method:** A stratified purposive sampling approach is recommended to ensure representation across different roles and school types (e.g. secondary). This method aligns with practices used in educational surveys to capture diverse perspectives and avoid bias toward any subgroup. **Sample Size:** Determined based on school size, staff population, and resource availability. For example, selecting approximately 30% of schools or staff members from each stratum can provide sufficient data for statistical analysis.

## Survey Administration

**Mode of Administration:** The survey was conducted via multiple modes depending on resources and respondent accessibility. **Paper-based:** Distribution of questionnaires to school staff with clear instructions and return questionnaires to ensure confidentiality. **Online/Web-based:** Using secure survey platforms with unique access codes to ensure only selected participants respond. This method facilitates data collection efficiency and reduces data entry errors. **A Hybrid Approach** was used, combining both paper and online methods to maximise participation. **Standardised Instructions:** All respondents receive a uniform set of instructions, including the purpose of the survey, anonymity assurances, and guidance on how to select responses. This standardisation reduces administration bias and improves data reliability. **Confidentiality and Consent:** Participation is voluntary, with explicit consent obtained. Anonymity was emphasised to encourage honest and unbiased responses.

## Data Collection Process

**Pre-Survey Preparation:** Before distribution, pilot testing is conducted with a small group to check clarity, relevance, and timing. Feedback is used to refine items and instructions. **Survey Distribution:** For paper surveys, designated coordinators distribute and collect completed questionnaires, ensuring no coercion or influence. For online surveys, respondents receive personalised links or tokens and complete the survey within a specified timeframe, often monitored by a survey administrator to ensure compliance. **Follow-up:** Reminder communications (WhatsApp text, calls, and in-person) are sent to non-respondents to improve response rates, a critical factor in survey validity.

## Data Handling and Quality Assurance

**Data Entry and Cleaning:** Paper responses are scanned or manually entered into a database, with double-entry verification to minimise errors. Online responses are automatically recorded and backed up. **Missing Data Management:** Procedures were established to handle incomplete responses, such as follow-up queries and statistical imputation, depending on the extent of missing data. **Reliability Checks:** Internal consistency of Likert-scale items is assessed using Cronbach's alpha or similar measures to ensure the instrument's reliability.

## Analysis and Reporting

**Quantitative Analysis:** Responses are coded numerically (e.g., SD=1, D=2, A=3, SA=4) to calculate means, standard deviations, and frequencies for each item and section. Comparative Analysis: Differences across demographic groups (e.g., staff role, school type) can be examined to identify patterns or disparities in perceptions. Regression or Correlation: To explore relationships between system usage and administrative effectiveness, regression analyses may be conducted. Feedback to Stakeholders: Summarised findings are shared with school leadership and staff to inform decision-making and system improvements.

**Table 5: Summaries of the instruments of data collection**

Step	Description	Sources
Sampling	Stratified purposive sampling of school staff across roles and school types	Creswell, J. W. (2014). <i>Research Design: Qualitative, Quantitative, and Mixed Methods Approaches</i>
Survey Mode	Paper-based, online, or hybrid with unique access tokens	Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). <i>Internet, Phone, Mail, and Mixed-Mode</i>
Instructions	Standardised, clear instructions emphasising anonymity and voluntary participation	Fowler, F. J. (2014). <i>Survey Research Methods</i>
Data Collection	Administered during staff meetings or via secure online platforms	Bryman, A. (2016). <i>Social Research Methods</i>
Data Quality Assurance	Pilot testing, double data entry, handling missing data	De Vaus, D. (2013). <i>Surveys in Social Research</i>
Data Analysis	Coding responses numerically, statistical analysis, and regression	Field, A. (2018). <i>Discovering Statistics Using IBM SPSS Statistics</i>
Reporting	Sharing findings with stakeholders for informed decision-making	Patton, M. Q. (2015). <i>Qualitative Research &amp; Evaluation Methods</i>
Ethical Considerations	Informed consent, confidentiality, voluntary participation	American Educational Research Association (AERA) (2011). <i>Code of Ethics</i>
Respondent Training	Orientation sessions on the survey purpose and terminology	Dillman et al. (2014), <i>Tailored Design Method</i>

Source: Creswell, J. W. (2014) p. 24

## Validity of the Instrument

To ensure content and construct validity, the questionnaire was reviewed by experts in educational technology and school administration. Their feedback helped refine the wording, relevance, and comprehensiveness of items to align with the study's conceptual framework (Nguyen, 2024; Taherdoost, 2018). The instrument was also benchmarked against validated tools from previous EMIS studies in East and West African contexts. This comparison ensured conceptual alignment with internationally recognised standards while adapting to Cameroon's educational context (UNESCO, 2021).

After expert review, a pilot test was conducted, and minor modifications were made to improve comprehension and eliminate redundancy. This process provided confidence that the instrument would measure what it intended, namely, the relationship between EMIS utilisation and administrative effectiveness. The pilot results informed minor revisions that improved question clarity and response options, ensuring the instrument accurately captured the intended variables (Adebola & Mensah, 2024). These steps ensured that the instrument measures what it purports to measure and that the data collected would be meaningful and reliable for analysis (Boateng & Mensah, 2023).

### **Reliability of the Instrument**

Reliability was tested by administering forty (40) questionnaires to forty administrators in selected secondary schools in Mfoundi division, Yaoundé. Responses were analysed using SPSS version 27 to calculate the Cronbach's alpha coefficient, which yielded a value of 0.988. This exceeds the acceptable threshold of 0.7 and indicates excellent internal consistency (George & Mallery, 2019). To further enhance reliability, reverse-coded questions were included to detect response bias, and all items were reviewed for clarity and logical flow. The high reliability score confirmed that the instrument could be used confidently in the main study to draw meaningful conclusions. Moreover, attention was paid to ensuring inter-item correlation and avoiding double-barrelled questions. This methodological rigour contributed to a robust instrument capable of producing replicable and trustworthy data across multiple school settings.

### **Administration and Collection of Data**

The questionnaire was personally distributed and retrieved by the researcher with assistance from trained field officers. This hands-on approach ensured high response rates and allowed for immediate clarification of questions, especially those involving technical EMIS concepts.

The researcher also ensured that participants had a conducive environment and ample time to respond thoughtfully. All questionnaires were coded for anonymity, and respondents were instructed not to include identifying information. The collection was completed during school administrative hours to avoid interference with classroom activities. The assistance of school secretaries and vice principals helped streamline the process and encouraged respondent engagement. The data collection phase was completed within the planned timeline, with 100% retrieval of distributed questionnaires, an outcome attributed to stakeholder cooperation and the relevance of the study topic.

## **Data Analysis**

Data analysis was conducted in two phases. The descriptive statistics, such as mean scores, standard deviations, frequencies, and percentages, were used to summarise EMIS usage patterns and perceptions of administrative effectiveness. This provided a clear baseline for understanding the respondents' demographic and functional profiles. And inferential statistical tools were applied, including ordinal logistic regression, to evaluate the strength and direction of relationships between EMIS components and indicators of administrative effectiveness (Pereira & Yadav, 2023). These analyses enabled hypothesis testing and provided insights into which. Before running inferential statistics, all collected data were coded and entered into SPSS version 27 for cleaning.

This step included checking for missing values, outliers, and inconsistencies in respondent input. The use of SPSS allowed for efficient transformation of ordinal responses from the Likert scale into numeric values, enabling deeper statistical interrogation of trends and associations (George & Mallery, 2019). The initial descriptive statistics, ordinal logistic regression was employed to determine the degree to which each EMIS component (SIS, HRIS, FIS) predicted levels of administrative effectiveness. This method is suitable for ordinal data and is robust against violations of normality, making it ideal for Likert-type responses (Pereira & Yadav, 2023). The dependent variable, administrative effectiveness, was analysed using indicators such as timeliness, accuracy, and perceived accountability.

## **Ethical Considerations**

Ethical compliance was a foundational pillar of this research. Informed consent was obtained from each participant through a signed consent form explaining the study's purpose, procedures, and voluntary nature. Respondents were informed that participation was optional

and that they could withdraw at any point without consequence (Resnik, 2020). This transparency fostered trust and ensured autonomy throughout the data collection process. Confidentiality was preserved through anonymised coding of all questionnaires. Identifiable personal or school data were not collected, and all responses were stored securely using encrypted digital files accessible only to the principal investigator. This upheld the principles of data protection and participant privacy, aligning with best practices in educational research (UNESCO, 2021). Cultural and professional ethics were equally respected. School leaders were engaged early through official correspondence, and institutional approvals were obtained before any data collection began. Efforts were made to ensure sensitivity to institutional protocols, language preferences, and administrator availability. Ultimately, this ethical framework ensured the study-maintained integrity, minimised potential harm, and produced credible results that can inform policy and practice.

# **CHAPTER FOUR**

## **DATA ANALYSIS AND PRESENTATION**

This chapter presents a detailed analysis of data collected on Educational Management Information Systems (EMIS) on administrative effectiveness in School (selected secondary schools) in Mfoundi Division, Cameroon. The data were collected through questionnaires. The analysis focuses on the three core specific objectives of this study. The study sought to provide answers to three specific objectives: (i) To examine the extent to which the student information system (SIS) is utilised to improve administrative effectiveness in secondary schools in Mfoundi Division. (ii) To assess the role of the human resources information system (HRIS) in managing staff data and supporting administrative effectiveness in secondary schools in Mfoundi Division. (iii) To examine the extent to which the financial information system (FIS) is used to enhance administrative effectiveness in secondary schools in Mfoundi Division.

### **Response Rate**

All the participants of this study were expected to contribute by responding to the questionnaire. The participants included principals, vice principals and bursars. A total of 123 questionnaires were administered in the different schools mentioned above within the Mfoundi Division. The majority were filled and handed back to the researcher, while others made appointments for questionnaire return. A total of 120 questionnaires were returned to the researcher, obtaining a return rate of 97.5%.

### **Descriptive Statistics on Demographic Information**

Demographic characteristics of participants in this study include the gender, position, and work experience and qualification, age, and knowledge of EMIS.

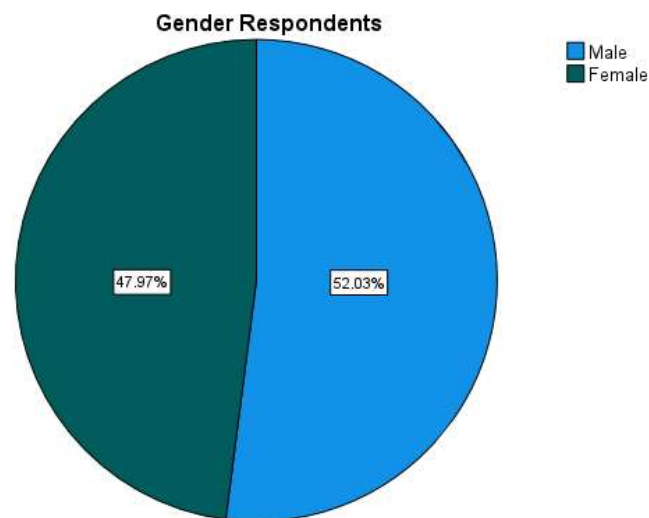
#### **Gender of Respondent**

The gender for this study included male and female administrators of secondary schools in Mfoundi Division, Yaoundé.

**Table 6: Gender Respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	64	52.0	52.0	51.7
Female	59	48.0	48.0	100.0
Total	123	100.0	100.0	

**Figure 9: Gender Respondents**



**Source: Field Data (2025)**

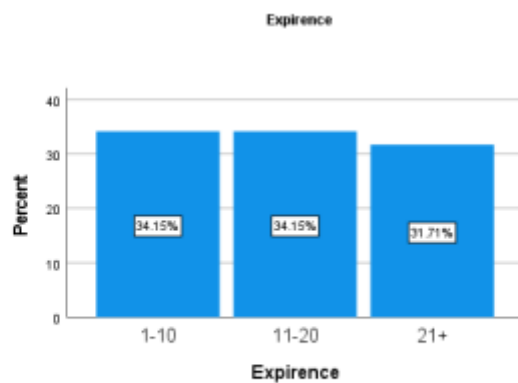
The pie chart on gender distribution shows that males constituted a larger number of respondents (52.0%) as compared to (48.0%) for female respondents. This shows that the majority of the respondents of the questionnaire were male participants.

### **Work Experience**

Respondents were grouped into three groups based on their experience. That is the first group (1-10 years' experience), the Second group (11 -20 years' experience), and the third group ranges from (21+ years' experience).

**Table 7: Work Experience**

		Work Experience			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-10	42	34.1	34.1	34.1
	11-20	42	34.1	34.1	68.3
	21+	39	31.7	31.7	100.0
	Total	123	100.0	100.0	

**Figure 10: Work Experience**

**Source: Field Data (2025)**

The highest proportion of respondents was 34.1%, with work experience ranging from 1 to 10 years, as shown in the table and figure. 34.1% respondents had experience of 11 -20 years. Finally, 21+ experience had 31.7%. The experience of respondents made the information collected reliable.

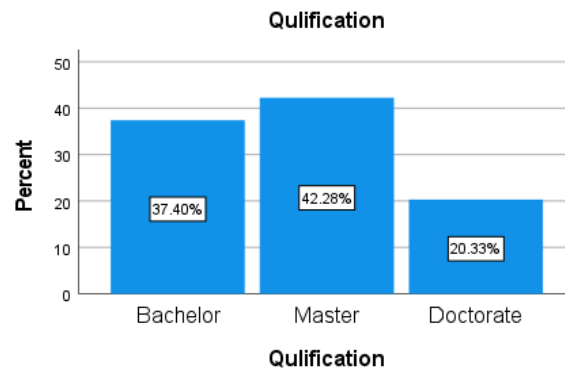
### **Educational level of respondent (Qualification)**

From the information collected, respondents were divided into three categories based on their educational qualifications. That is a bachelor’s degree, a master’s degree and a doctoral degree.

**Table 8: Educational Qualification**

		Qualification			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor	46	37.4	37.4	37.4
	Master	52	42.3	42.3	79.7
	Doctorate	25	20.3	20.3	100.0
	Total	123	100.0	100.0	

**Figure 11: Educational Qualification**



**Source: Field Data (2025)**

The bar chart shows that most of the respondents had a Master’s degree with 42.3%, followed by a Bachelor’s degree with 37.4%, and the least with 20.3% for Doctorates. From the information collected, the majority of the respondents had the necessary qualifications to administer and teach in secondary school.

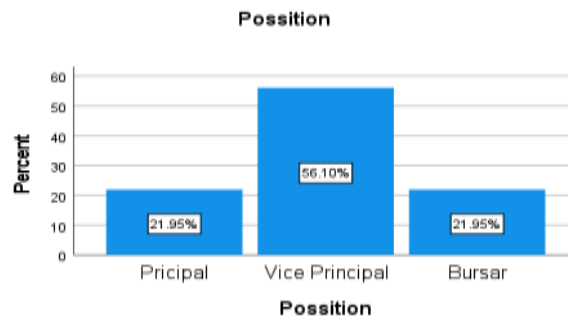
**Administrative Position**

The respondent’s position was recorded in three categories. The first category was Principals. The second category was Vice Principals. The third category was the Bursars.

**Table 9: Administrative Position**

		Position			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Principal	27	22.0	22.0	22.0
	Vice Principal	69	56.1	56.1	78.0
	Bursar	27	22.0	22.0	100.0
	Total	123	100.0	100.0	

**Figure 12: Administrative Position**



**Source: Field Data (2025)**

As shown in the table, 22.0% respondents are Principals, 55.1% were also Vice Principals, while 22.0% were Bursars. From the bar chart, it is indicated that Vice principals constitute the highest population

**Presentation of Findings on the Research Objectives**

Objective One: To examine the extent to which the student information system (SIS) is utilised to improve administrative effectiveness in secondary schools in Mfoundi Division.

To answer this research objective, the data collected were analysed using percentage, frequency, mean and standard deviation as shown in the table

**Table 10: Student Information System (SIS) Usage**

Statement	A	SA	Mean	Std. Deviation
	f (%)	f (%)		
The SIS is regularly used to manage student enrolment data in my school	47(39.2)	73(60.8)	3.608	.4902
SIS improves the accuracy of student academic records and reports.	72(60.0)	48(40.0)	3.400	.4920
SIS facilitates timely communication between teachers and parents.	65(54.2)	55(45.8)	3.458	.5004
SIS supports effective monitoring of student attendance and performance.	64(53.3)	56(46.7)	3.467	.5010
I employ the information system for tracking student data	73(60.8)	47(39.2)	3.392	.4902
SIS integration with other school systems enhances overall efficiency	53(44.2)	67(55.8)	3.558	.4987
The SIS helps in making informed decisions regarding student academic progress	53(42.2)	67(55.8)	3.558	.4987
Technical issues rarely hinder the use of SIS in our school.	68(56.7)	52(43.3)	3.433	.4976
SIS contributes to improving student academic outcomes.	60(50)	60(50)	3.500	.5021
SIS usage has increased the overall satisfaction of students and parents.	53(44.2)	67(55.8)	3.558	.4987

**Source: Field Data (2025)**

As indicated in the Table, most of the respondents fell in the category of those who strongly agreed and agreed to examine the extent to which the student information system (SIS) is utilised to improve administrative effectiveness in secondary schools in Mfoundi Division. The SIS is regularly used to manage student enrolment data in my school (73(60.8) mean=3.608), strongly agree with the statement. SIS improves the accuracy of student academic records and reports. (72(60.0) mean=3.400) agree, SIS facilitates timely communication between teachers and parents. (65(54.2) mean=3.458) agree, SIS supports effective monitoring of student attendance and performance. (64(53.3) mean=3.467) agree. I employ the information system for tracking student data (73(60.8) mean=3.392) agree, SIS integration with other school systems enhances overall efficiency. (67(55.8) mean=3.558) strongly agree, The SIS helps in making informed decisions regarding student academic progress (67(55.8) mean=3.558), strongly agree, technical issues rarely hinder the use of SIS in our school. (68(56.7) mean=3.433) agree, SIS contributes to improving student academic outcomes. (60(50) mean=3.500) strongly agree and agree, SIS usage has increased the overall satisfaction of students and parents. (67(55.8) mean=3.558) strongly agree. Meanwhile, no respondents strongly disagreed and disagreed on the extent to which the student information system (SIS) is utilised to improve administrative effectiveness in secondary schools in Mfoundi Division

### **The Overall use of SIS in schools for administrative effectiveness**

With respect to the table, a high rate of responses (73(60.8) mean=3.608) strongly agree that this proves that the respondent strongly agreed on the use of SIS in their school for administrative effectiveness. Based on data analysis on the Table, the study found that school administrators use the student information system to enhance administrative effectiveness in public and private secondary schools in Mfoundi division. The responses were presented in a Likert scale of 1-4 (Strongly Disagree, Disagree, Agree, Strongly Agree).

**Objective Two:** To assess the role of the human resources information system (HRIS) in managing staff data and supporting administrative effectiveness in secondary schools in Mfoundi Division.

To answer this research objective, the data collected were analysed using percentage, frequency, mean and standard deviation as shown in the table

**Table 11: Human Resources Information System (HRIS) Usage**

Statement	A	SA	Mean	Std. Deviation
	f (%)	f (%)		
The Human Resources Information System (HRIS) is fully implemented in my school.	78(65.0)	42(35.0)	3.350	.4790
HRIS is effectively used to manage staff recruitment and deployment	71(59.2)	49(40.8)	3.408	.4936
HRIS helps in monitoring staff attendance and performance accurately	52(43.3)	68(56.7)	3.567	.4976
HRIS facilitates tracking of staff professional development and training.	63(52.5)	57(47.5)	3.475	.5015
The use of HRIS has streamlined payroll and benefits management	77(64.2)	43(35.8)	3.358	.4815
Utilizing HRIS empowers me to make decisions about my HR-related requests and processes	71(59.2)	49(40.8)	3.408	.4936
HRIS contributes to reducing errors and delays in human resource management.	76(63.3)	44(36.7)	3.367	.4839
Data security and privacy are well-maintained within the HRIS	78(65.0)	42(35.0)	3.350	.4790
HRIS supports compliance with government policies related to education staff	70(58.3)	50(41.7)	3.417	.4951
The HRIS has positively impacted the administrative effectiveness of human resource management	65(54.2)	55(45.8)	3.458	.5004

**Source: Field Data (2025)**

As indicated in the Table, most of the respondents fell in the category of those who agreed and strongly agreed to assess the role of the human resources information system (HRIS) in managing staff data and supporting administrative effectiveness in secondary schools in Mfoundi Division. The Human Resources Information System (HRIS) is fully implemented in my school (78(65.0) mean=3.350) agree with the statement, HRIS is effectively used to manage staff recruitment and deployment (71(59.2) mean= 3.408) agree, HRIS helps in monitoring staff attendance and performance accurately (68(56.7) mean=3.567) strongly agree, HRIS facilitates tracking of staff professional development and training. (63(52.5) mean= 3.475) agree, the use of HRIS has streamlined payroll and benefits management (77(64.2) mean=3.35). agree, Utilising HRIS empowers me to make decisions about my HR-related requests and processes (71(59.2) mean 3.408). agree, HRIS contributes to reducing errors and delays in human resource management. (76(63.3) mean=3.367) agree, Data security and privacy are well-maintained within the HRIS (78(65.0) mean=3.350) agree, HRIS supports compliance with government policies related to education staff (70(58.3) mean=3.417) agree, The HRIS has positively impacted the administrative effectiveness of human resource

management (65(54.2) mean=3.458) agree. Mainly, while no respondents strongly disagreed and disagreed, but showed a high level of agree and strongly agree.

**Overall use of the role of the human resources information system (HRIS) in managing staff data and supporting administrative effectiveness in secondary schools in Mfoundi Division.**

As seen on the table (78(65.0) mean=3.350) agree, this proves that respondents agreed to the use to assess the role of the human resources information system (HRIS) in managing staff data and supporting administrative effectiveness in secondary schools in Mfoundi Division. The Responses were presented in a Likert scale of 1-4 (Strongly Disagree, Disagree, Agree, Strongly Agree).

**Objective Three:** To examine the extent to which the financial information system (FIS) is used to enhance administrative effectiveness in secondary schools in Mfoundi Division.

In order to answer this research objective, the data collected were analysed using percentages, frequency, mean and standard deviation as shown in the table

**Table 12: Financial Information System (FIS) Usage**

Statement	A	SA	Mean	Std. Deviation
	f (%)	f (%)		
The FIS is consistently used for managing school financial transactions	70(58.)	50(41.7)	3.417	.4951
The system improves transparency in fee collection and financial management	75(62.)	45(37.5)	3.375	.4862
FIS ensures timely payment and recording of fees by students and parents	69(57.)	51(42.5)	3.425	.4964
The system generates accurate financial reports to support budgeting and planning	69(57.)	51(42.5)	3.425	.4964
Technical problems rarely affect the functioning of the FIS	68(56.)	52(43.3)	3.433	.4976
The FIS integrates well with other school administrative systems	71(59.)	49(40)	3.408	.4936
The FIS has reduced manual errors in financial management	73(60.)	47(39.2)	3.392	.4902
The FIS enhances accountability in financial administration.	59(49.)	61(50.8)	3.508	.5020
Overall, the FIS has improved financial management effectiveness in our school.	63(52.)	57(47.5)	3.475	.5015
School financial statement is easily accessed.	81(67.)	39(32.5)	3.325	.4703

**Source: Field Data (2025)**

As indicated in the Table, most of the respondents fell in the category of those who agreed and strongly agreed to examine the extent to which the financial information system (FIS) is used

to enhance administrative effectiveness in secondary schools in Mfoundi Division. The FIS is consistently used for managing school financial transactions (70(58.3) mean=3.417), agree. The system improves transparency in fee collection and financial management (75(62.5) mean= 3.375), agree. FIS ensures timely payment and recording of fees by students and parents (69(57.5) mean= 3.425) agree. The system generates accurate financial reports to support budgeting and planning (69(57.5) mean=3.425) agrees. Technical problems rarely affect the functioning of the FIS (68(56.7) mean= 3.433) agree. The FIS integrates well with other school administrative systems (71(59.2) mean=3.408), agrees. The FIS has reduced manual errors in financial management (73(60.8) mean= 3.392), agree. The FIS enhances accountability in financial administration. (61(50.8) mean= 3.508) strongly agree. Overall, the FIS has improved financial management effectiveness in our school. (63(52.5) mean= 3.475) agree. The school's financial system is easily accessible. (81(67.5) mean= 3.325) agree. As shown on the table high rate of respondents show more interest on agree and strongly agree.

**Overall, use to examine the extent to which financial information system (FIS) is used to enhance administrative effectiveness in secondary schools in Mfoundi Division.**

On the table, it can be observed that (81(67.5) mean 3.325) agree, these respondents agreed with the statement that financial information system (FIS) is used to enhance administrative effectiveness in secondary schools in Mfoundi Division. The responses were presented in a Likert scale of 1-4 (Strongly Disagree, Disagree, Agree, Strongly Agree).

In order to answer this research objective, the data collected were analysed using percentage, frequency, mean and standard deviation as shown in the table

**Table 13: Administrative Effectiveness**

Statement	A	SA	Mean	Std. Deviation
	f (%)	f (%)		
The school's administrative processes are efficient and well-coordinated.	62(51.7)	58(48.3)	3.483	.5018
Communication among administrative staff is clear and timely.	67(55.8)	53(44.2)	3.442	.4987
Decision-making processes in the school administration are transparent	70(58.3)	50(41.7)	3.417	.4951
The administration effectively supports teaching and learning activities	63(52.5)	57(47.5)	3.475	.5015
Administrative staff receive sufficient training to perform their duties well	67(55.8)	53(44.2)	3.442	.4987
The school administration effectively manages resources and facilities	62(51.7)	58(48.3)	3.483	.5018
The administration promptly addresses issues and concerns raised by staff and students	68(56.7)	52(43.3)	3.433	.4976

Technology is adequately used to improve administrative tasks in the school.	70(58.3)	50(41.7)	3.417	.4951
The administration fosters a positive and supportive school environment	62(51.7)	58(48.3)	3.483	.5018
Overall, the school administration contributes significantly to the school's success	68(56.7)	52(43.3)	3.433	.4976

**Source: Field Data (2025)**

As seen on the table, the school's administrative processes are efficient and well-coordinated. (62(51.7) mean= 3.483) agree. Communication among administrative staff is clear and timely. (67(55.8) mean=3.442) agree. Decision-making processes in the school administration are transparent (70(58.3) mean 3.417), agree. The administration effectively supports teaching and learning activities (63(52.5) mean=3.475), agree. Administrative staff receive sufficient training to perform their duties well (67(55.8) mean=3.442), agree that the school administration effectively manages resources and facilities (62(51.7) mean=3.483) agree. The administration promptly addresses issues and concerns raised by staff and students (68(56.7) mean= 3.433) agree. Technology is adequately used to improve administrative tasks in the school. (70(58.3) mean=3.417) agree. The administration fosters a positive and supportive school environment (62(51.7) mean=3.483), agree. Overall, the school administration contributes significantly to the school's success (68(56.7) mean= 3.433), agrees. On the table, it can be observed that (70(58.3) mean= 3.417) agree, these respondents agreed that administrative activities were effective in their schools, which is a strong indication that EMIS plays a significant role in administrative effectiveness in secondary schools in the Mfoundi Division. The responses were presented in a Likert scale of 1-4 (Strongly Disagree, Disagree, Agree, Strongly Agree).

**Research Hypotheses test**

The inferential test described for the testing of our hypotheses was a simple linear regression. Simple linear regression analysis was used to examine the relationship between the dependent variable and the independent variable. It establishes a linear relationship between EMIS and administrative effectiveness by fitting a straight line through the data points. This line represents the best fit of the data, and it can be used to make predictions about the value of the dependent variable (administrative effectiveness) based on the value of the independent variable, Educational Management Information System (EMIS)

**H01: There is no significant relationship between the use of the Student Information System and administrative effectiveness in Education (Selected secondary schools) in Mfoundi Division, Yaoundé**

**Table 14: Regression of the relationship between the SIS and administrative effectiveness**  
**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	0.565 <sup>a</sup>	0.303	0.126	0.627	.303	22.993	1	117	.0001

**ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.	Model
1	Regression	7.063	1	7.063	22.993	.0001 <sup>b</sup>
	Residual	45.929	117	.393		
	Total	52.992	118			

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
		1	(Constant)	3.702			0.403	
1	Students' Information System.	0.488	0.115	0.365	-4.242	.0001	0.260	0.716

A simple linear regression was conducted to evaluate the relationship between the use of SIS and Administrative Effectiveness. A positive correlation (R=0.565) was found between the use of SIS and Administrative Effectiveness. A significant regression was seen (F=22.993, df=1, p value<0.0001, less than 0.05). The adjusted R2 was 0.303, indicating that the use of Student Information Systems explained approximately 30.3% of the variance observed in Administrative Effectiveness. For every one unit increase in the acceptance of the use of SIS increases Administrative Effectiveness by 0.565 (95% CI:0.716 to 0.260; P<0.0001), as seen in the Table.

**The regression equation was:** Administrative effectiveness =3.702+0.488SIS.

We therefore reject the null hypothesis, which states that there was no significant relationship between the use of student information systems and administrative effectiveness in the public and private secondary schools in Mfoundi Division, and accept the alternative hypothesis.

**H02: Human Resource Information System has no significant relationship on the administrative effectiveness in secondary schools in Mfoundi Division, Yaoundé.**

**Table 15: Regression of the relationship between the HRIS and administrative effectiveness.**

ANOVA						
Model	Sum of Squares	df	Mean Square	F	Sig.	Model
1	Regression	20.98	1	20.96	55.6	0.000 <sup>b</sup>
	Residual	44.55	118	0.378		
	Total	65.51	119			

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	0.566 <sup>a</sup>	0.320	0.312	0.421	0.320	55.6	1	118	0.000

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.10	0.15		7.33	.0001	0.80	1.40
	Students' Information System.	0.55	0.07	0.57	7.66	.0001	0.41	0.69

The simple linear regression was conducted to evaluate the relationship between use of HRIS and Administrative Effectiveness. A positive correlation (R=0.566) was found between the use of HRIS and administrative effectiveness. A significant regression was seen (F=56.6, df=1, p value<0.0001 less than 0.05).

The adjusted R2 was 0.320, indicating that the use of Student Information Systems explained approximately 32.0% of the variance observed in administrative effectiveness. For every one unit increase in the acceptance of the use of HRIS increase in administrative effectiveness by 0.566 (95% CI:0.69 to 0.41; P<0.0001), as seen on the Table.

**The regression equation was:** Administrative Effectiveness =1.10+0.55 HRIS. We therefore reject the null hypothesis, which states that the was no significant relationship between the use

of student information systems and administrative effectiveness in the public and private secondary schools in Mfoundi Division and accept the alternative hypothesis.

**H03: There is no significant relationship between the financial information system and administrative effectiveness in secondary schools in Mfoundi Division, Yaoundé.**

**Table 16: Regression of the relationship between the FIS and administrative effectiveness  
Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	0.543 <sup>a</sup>	0.295	0.286	0.453	0.295	47.75	1	118	0.000

**ANOVA<sup>a</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	19.25	1	19.25	47.75	0.000 <sup>b</sup>
1 Residual	45.81	118	0.388		
Total	65.06	119			

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B				
					B	Std. Error	Beta	Lower Bound	Upper Bound
					1 (Constant)	2.10	0.150	14.00	0.000
1 Students' Information System.	-0.400	0.058	-0.543	-6.91	0.000	-0.516	-0.284		

The simple linear regression was conducted to evaluate the relationship between the use of FIS and administrative effectiveness. A positive correlation ( $R=0.543$ ) was found between the use of FIS and administrative effectiveness. A significant regression was seen ( $F=47.75$ ,  $df=1$ ,  $p$  value  $<0.0001$ , less than  $0.05$ ). The adjusted  $R^2$  was  $0.295$ , indicating that the use of Student Information Systems explained approximately  $29.5\%$  of the variance observed in administrative effectiveness. For every one unit increase in the acceptance of the use of FIS, increase administrative effectiveness by  $0.543$  ( $95\%$ ) CI: $0.69$  to  $0.41$ ;  $P<0.0001$ ), as seen on the Table.

**The regression equation was:**

Administrative Effectiveness = 2.10 + 0.400 FIS.

We therefore reject the null hypothesis, which states that there was no significant relationship between the use of student information systems and administrative effectiveness in the public and private secondary schools in Mfoundi Division and accept the alternative hypothesis.

# CHAPTER FIVE

## DISCUSSION OF RESULTS, CONCLUSION AND RECOMMENDATIONS

Following on from the preceding research, this concluding chapter attempts to explain the results given in Chapter Four and provide explanations for any divergent or unexpected findings. The findings are presented thematically to answer the study's three objectives and hypotheses. The chapter concludes with a summary that overviews the whole research study. Recommendations are also given in the form of suggestions, along with proposals for further research directions. The chapter concludes with a consideration of the study's limitations and an assessment of the overall research process.

**Discussion of results:** As mentioned in the results, a total of 123 questionnaires, corresponding to 123 respondents, were analysed from a sample of 184 who were administered. Thus, a return rate of 97.5% was obtained, which is sufficiently representative to analyse (Simer, 2013). That 64(52.0%) of the respondents were men and 59(48.0%) for women is not just coincidental. Additionally, most of the respondents were Vice principals with 69(56.1%). A majority of our respondents 52(42.3%) were master's degree holders. The awareness of EMIS has advanced than I thought, all the respondents have knowledge about Education Management Information System, given that they are in a high technological potential city, where information flows take various media quickly.

### Discussion of Objectives

**Objective one:** The initial specific objective for this research was to examine the extent to which the student information system (SIS) is utilised to improve administrative effectiveness in secondary schools in Mfoundi Division. Following the literature gathered, ten research items were investigated. Based on the analysis, it was proven that school administrators use SIS to enhance administrative activities, with the majority of the respondents strongly agreeing with the overall computation of all items (608, 50.67%), given a high average rate. Therefore, school administrators agree to the fact that they use SIS for administrative effectiveness by recoding student's data in the data base, retrieving student records, registration of new students in the information system, update records for continuing students, enter and store student's mark in the database, generate class list, track students, get access and generate report booklet after

each assessment. Thus, according to the findings, SIS was found to be a valuable technological facility for efficient administrative effectiveness. Concerning Adekunle, B., & Olalere, O. (2021) study, this research affirms that the proper use of Student Information Systems plays a great role in enhancing administrative efficiency in secondary schools through correct data management, easy student tracking, and effective academic reporting processes.

### **Objective two**

The second objective of this research was to assess the role of the human resources information system (HRIS) in managing staff data and supporting administrative effectiveness in secondary schools in Mfoundi Division. The researcher used ten questions for this objective, and the majority of the respondents, 721(59.09%), gave a high rate. Thus, this proves that school administrators agree to the facts that HRIS is very effective in staff recruitment and deployment, development and training, streamlined payroll and management, decision making, monitoring employees, measuring employees, forecasting and planning for employees' needs.

Previous studies affirm the important contribution of HRIS to enhancing administrative operations through the automation of human resource management processes, accuracy of data, and facilitation of strategic workforce planning, thus leading to better institutional performance (Boudreau & Marler, 2017). Sikira and Mishael (2024) demonstrate that Human Resource Information Systems (HRIS) greatly enhance the efficiency of human capital management and organizational performance through streamlining personnel records, supporting strategic decision-making procedures, and improving employees' satisfaction and productivity in higher learning institutions.

### **Objective three**

The research objective aimed to examine the extent to which the financial information system (FIS) is used to enhance administrative effectiveness in secondary schools in Mfoundi Division

For this objective, the researcher selected ten items. Most respondents agreed to items with an average of 668(57.1%) in favour of the fact that school administrator's use FIS to enhance administrative effectiveness in public and private secondary schools in the Mfoundi division by monitoring student's school fee payment, managing school revenue and expenses, record financial transaction in the system, budget for school activities, get access and obtain financial statements and also generate school fee reports. Literature proves that the effective use of

Financial Information Systems (FIS) significantly improves administrative efficiency and accountability in educational organisations. FIS enables the methodical monitoring of financial activities by school managers, streamlining the tracking of revenues and expenditures and generating timely financial reports, hence promoting better planning and transparency in school management (Mukras et al., 2023).

### **Discussion of hypothesis results**

SIS use has a positive effect on administrative efficiency. The hypothesis related to the first aim showed a positive relationship, indicating that the increase in one variable leads to an increase in the other. In other words, as school administrators use SIS, which enhances efficiency, the overall performance of administrative tasks undergoes a significant improvement in the public and private secondary schools of the Mfoundi division.

This observation is upheld by a study, Effective Implementation and utilisation of Student Information Systems improve school administrative performance through enhancing data management, communication, and decision-making processes (Nkengafac, 2022).

### **Hypothesis 2**

The second hypothesis also revealed the existence of a statistically significant correlation between the utilisation of the Human Resource Information System and effective administration in public and private secondary schools in the Mfoundi division. That is, HRIS is crucial in strategic human tasks, as the results were in line with the organisation's growing dependence on the utilisation of HRIS in strategic human tasks. A study conducted by Mishael and Sikira (2024) confirmed that HRIS greatly enhances the efficiency of human resource management and organisational performance in educational organisations.

The study emphasised that HRIS assists in major strategic human resource functions such as recruitment of staff, deployment, management of training, and payroll processing, hence improving administrative efficacy. Mbamba and Sanga (2024) offer empirical proof that the use of HRIS within institutions of higher learning results in decreased administrative expenses, improved quality of HR service delivery, and fostering of HR innovation. These results highlight the significant contribution of HRIS in facilitating strategic human resource activities and general administrative efficacy in educational settings.

### **The utilisation of FIS significantly improves administrative effectiveness.**

The positive relationship between the Financial Information System (FIS) and administrative effectiveness indicates that school administrators have a sufficient grasp of the system, which is user-friendly and compatible with some administrative procedures. Further, they are aware of the higher benefits of using the system over a manual system, as confirmed by the diffusion and innovation theory and LUM. It can, therefore, be assumed that the Financial Information System provides relevant data and information, enabling prompt decision-making critical to the effective administration of public secondary schools in the Mfoundi division. In conclusion, the use of FIS for administrative purposes in secondary schools has considerable long-term effects. Ofori and Boateng (2023) discovered that the use of Financial Information Systems in schools, apart from integrating administrative and financial functions, promotes transparency and strategic decision-making, underscoring further the role of FIS as a catalyst for administrative efficacy in education on a long-term basis.

### **Conclusions**

This study explored how school administrators in public secondary schools in the Mfoundi Division utilise the Education Management Information System (EMIS) to enhance administrative effectiveness. Guided by one main objective and three specific objectives, the study addressed three key questions. These objectives were: (i) To examine the extent to which the student information system (SIS) is utilised to improve administrative effectiveness in secondary schools in Mfoundi Division. (ii) To assess the role of the human resources information system (HRIS) in managing staff data and supporting administrative effectiveness in secondary schools in Mfoundi Division. (iii) To examine the extent to which the financial information system (FIS) is used to enhance administrative effectiveness in secondary schools in Mfoundi Division. Based on these objectives, the following conclusions were drawn.

The findings strongly support that the Student Information System (SIS) plays a vital role in the effective administration of public and private secondary schools in the Mfoundi division. SIS streamlines critical tasks such as student enrolment, attendance tracking, grade management, communication with parents, and report generation. By providing accurate and timely data, SIS empowers school administrators to make informed decisions, fostering efficient school management. This aligns with the positive attitudes of administrators toward adopting information and communication technology, as outlined in Rogers' (2003) Innovation

Diffusion Theory. Continuous improvements to SIS are essential to sustain and enhance administrative effectiveness in these schools.

The study also confirms that the Human Resource Information System (HRIS) is a key asset for administrators, such as school principals, in the Mfoundi division. HRIS supports essential tasks like payroll processing, electronic recruitment, information storage and retrieval, and staff management, enabling sound decision-making and administrative efficiency. By adopting HRIS, schools enhance personnel management, time efficiency, and financial oversight. This adoption reflects the pragmatic acceptance of technological tools that improve administrative processes.

Overall, the Education Management Information System (EMIS), encompassing SIS, FIS, and HRIS, significantly enhances the administration of secondary schools in the Mfoundi Division. For administrators to fully leverage these systems, they must develop technical skills, system knowledge, and strong interpersonal abilities. By embracing these tools and skills, school leaders can ensure efficient, effective, and sustainable management of student, financial, and human resources.

In terms of financial management, the Financial Information System (FIS) significantly boosts efficiency, transparency, and accuracy in secondary schools. FIS supports better decision-making, resource allocation, budgeting, and overall financial oversight. The study's findings align with prior research, confirming that effective use of FIS strengthens financial management practices in educational institutions. Administrators' willingness to embrace this technological innovation reflects the perceived relative advantage described in Rogers' (2003) Diffusion of Innovation Theory and the Lazy User Model (Collan and Tetard, 2007). FIS is thus a critical tool for administrative effectiveness.

### **Contribution to Knowledge**

This research significantly contributes to the practical application of Education Management Information Systems (EMIS) in school administration. It confirms the effective adoption of EMIS in secondary schools, offering valuable guidance for administrators. The study highlights how EMIS enhances administrative efficiency by helping school leaders identify trends, pinpoint areas for improvement, and allocate resources effectively. Specifically, it demonstrates that Student Information Systems (SIS) streamline tasks like tracking student attendance, academic performance, extracurricular activities, awards, health records, and

discipline management in secondary schools within the Mfoundi Division. Additionally, the research underscores the role of Financial Information Systems (FIS) in improving financial management, promoting accountability, and ensuring sustainability in secondary schools. Furthermore, the study illustrates how Human Resource Information Systems (HRIS) provide robust reporting tools, enabling administrators to analyse staffing trends, turnover rates, absenteeism, and other key performance indicators. These insights support better recruitment strategies, training programs, and budgeting decisions. By exploring these aspects, the research shows how EMIS integration transforms administrative practices, ultimately contributing to the success of secondary schools.

Theoretically, this study reinforces existing frameworks, such as the Diffusion of Innovation Theory (DOI) and the Lazy User Model (LUM). It confirms that EMIS adoption is more likely when administrators recognise its advantages over manual processes and when the system is user-friendly, requiring minimal effort to optimise data collection and decision-making. Using ordinal regression, the study further validates the impact of EMIS on administrative effectiveness. Notably, this research is among the first to explore EMIS use for administrative effectiveness in public secondary schools in the Mfoundi division, laying a foundation for future studies in this area.

## **Recommendations**

Based on the findings, the following practical steps are recommended:

1. The Ministry of Secondary Education should establish a dedicated unit to design, implement, and manage a tailored EMIS for the Cameroonian education system. This unit would oversee data collection and sharing across schools.
2. The Ministry should provide ongoing online support for EMIS, with a dedicated expert available to assist administrators and staff.
3. Regular communication between EMIS staff and education stakeholders at all levels should be encouraged to ensure smooth implementation.
4. School leaders should conduct training sessions for new staff to build proficiency in using EMIS effectively.

5. Public secondary schools should continuously enhance their use of SIS to improve student management processes.
6. The government should develop a unified big data system across the three education ministries to track educational statistics and individual student information seamlessly.
7. School management should promptly address technical issues in EMIS to maintain uninterrupted administrative operations.
8. Computer education should be made a core subject in schools to equip administrators and students with essential digital skills.

### **Limitations of the Study**

The findings of this study should be interpreted with certain limitations in mind. Not all secondary schools in the Mfoundi division were included, as many are not yet using the Education Management Information System (EMIS) for administrative purposes, given that its adoption is not mandated by the government. As a result, the study focused solely on a sample of principals, vice principals, and Bursars from schools with access to computers and EMIS resources.

Additionally, there is limited research on the role of EMIS in enhancing administrative effectiveness in Cameroon's secondary schools. To address this gap, the related literature review drew on studies from other African countries and selected global contexts. However, the application of EMIS in school administration varies across countries, which may affect the generalizability of the findings. Despite these constraints, the study remained focused on its core objectives.

### **Suggestions for Further Research**

This study focused on the use of EMIS for administrative effectiveness in public secondary schools in the Mfoundi Division. To expand on these findings, the following research areas are suggested:

1. A comparative study examining how private and public secondary school administrators use EMIS to improve administrative effectiveness.
2. An investigation into the application of EMIS in specific areas of school administration, such as student management, personnel management, and financial administration.

3. An analysis of the factors influencing the adoption and implementation of EMIS in secondary schools and its impact on overall performance.
4. Conduct similar studies in other regions of Cameroon to assess EMIS adoption and its impact.
5. Compare the use of EMIS in public versus private secondary schools in the Mfoundi division.
6. Investigate EMIS implementation in primary schools to understand its effectiveness at different levels.
- 7 An investigation into the application of EMIS in specific areas of school administration, such as student management, personnel management, and financial administration for different educational levels.

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# APENDIX

## QUESTIONNAIRE

My name is Etta Levis Bawak, a master student from the faculty of education, department of Curriculum and Evaluation (Educational Management) of the University of Yaoundé I. Speciality: Educational Management of Information System and planning of Schools and Universities. Carrying out a research study geared toward the Educational Management Information System on Administrative Effectiveness in Schools (selected secondary school in Mfoundi Division), Yaoundé. I therefore guarantee that the information collected will be treated confidentially and used only for this study.

**Section A: General Information**

**GENDER:** Male  Female

**POSITION:** Principal  Vice Principal  Bursar

Experience (number of years of service) 1-10years  10-20 years  20+

Qualification .....

**Section B: Items Related to Research Variables**

The Likert scale will be used, where **SA = Strongly Agree, A =Agree, D =Disagree, and SD = Strongly Disagree.**

**Administrative Effectiveness: VE=Very Effective, E= Effective, LE=Less Effective and IE=Ineffective**

A	<b>Student Information System (SIS) Usage</b>				
SN	Please state your opinions on the scale	SA	A	D	SD
1	The SIS is regularly used to manage student enrolment data in my school.				
2	SIS improves the accuracy of student academic records and reports.				
3	SIS facilitates timely communication between teachers and parents.				
4	SIS supports effective monitoring of student attendance and performance.				

5	I employ the information system for tracking student data.				
6	SIS integration with other school systems enhances overall efficiency.				
7	The SIS helps in making informed decisions regarding student academic progress.				
8	Technical issues rarely hinder the use of SIS in our school.				
9	SIS contributes to improving student academic outcomes.				
10	SIS usage has increased the overall satisfaction of students and parents.				

<b>B Human Resources Information System (HRIS) Usage</b>					
<b>SN</b>	<b>Please state your opinions on the scale</b>	<b>SA</b>	<b>A</b>	<b>D</b>	<b>SD</b>
11	The Human Resources Information System (HRIS) is fully implemented in my school.				
12	HRIS is effectively used to manage staff recruitment and deployment.				
13	HRIS helps in monitoring staff attendance and performance accurately.				
14	HRIS facilitates tracking of staff professional development and training.				
15	The use of HRIS has streamlined payroll and benefits management.				
16	Utilising HRIS empowers me to make decisions about my HR-related requests and processes				
17	HRIS contributes to reducing errors and delays in human resource management.				
18	Data security and privacy are well-maintained within the HRIS.				
19	HRIS supports compliance with government policies related to education staff.				
20	The HRIS has positively impacted the administrative effectiveness of human resource management.				

<b>C Financial information System (FIS) Usage.</b>					
<b>SN</b>	<b>Please state your opinions on the scale</b>	<b>SA</b>	<b>A</b>	<b>D</b>	<b>SD</b>
21	The FIS is consistently used for managing school financial transactions.				
22	The system improves transparency in fee collection and financial management				
23	FIS ensures timely payment and recording of fees by students and parents				
24	The system generates accurate financial reports to support budgeting and planning				
25	Technical problems rarely affect the functioning of the FIS				
26	The FIS integrates well with other school administrative systems				
27	The FIS has reduced manual errors in financial management				

28	The FIS enhances accountability in financial administration.				
29	Overall, the FIS has improved financial management effectiveness in our school.				
30	The school's financial statement is easily accessed.				

<b>D</b>	<b>Administrative Effectiveness</b>	<b>VE</b>	<b>E</b>	<b>LE</b>	<b>IE</b>
<b>SN</b>	<b>Please state your opinions on the scale</b>				
31	The school's administrative processes are efficient and well-coordinated.				
32	Communication among administrative staff is clear and timely.				
33	Decision-making processes in the school administration are transparent				
34	The administration effectively supports teaching and learning activities.				
35	Administrative staff receive sufficient training to perform their duties well				
36	The school administration effectively manages resources and facilities				
37	The administration promptly addresses issues and concerns raised by staff and students				
38	Technology is adequately used to improve administrative tasks in the school.				
39	The administration fosters a positive and supportive school environment.				
40	Overall, the school administration contributes significantly to the school's success.				

Thanks for your response

Table 3.1

Table for Determining Sample Size of a Known Population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

Note: N is Population Size; S is Sample Size

Source: Krejcie & Morgan, 1970