

Integrating SAP Governance Risk and Compliance Into the Budgeting Cycle for Fiscal Sustainability in ECOWAS

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Research Article

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INTEGRATING SAP GOVERNANCE RISK AND COMPLIANCE INTO THE BUDGETING CYCLE FOR FISCAL SUSTAINABILITY IN ECOWAS.

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Ethics Approval: The structured questionnaires were detailed around ECOWAS Operations. With the approval of ECOWAS Management to use the budget and financial data, the ethical review approval had been waived, especially to allow the staff respondents to independently provide responses to the questionnaire. The research was carried out ethically and in line with established ECOWAS procedures on staff regulation and Code of Ethics.

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Declaration: Included in the paper or Supplementary Information (for raw data, not summary data such as means and variances) All data supporting the findings of this study are available in this link: https://ecowasint-my.sharepoint.com/:f:/g/personal/eetim_ecowas_int/IgDmbX-Kv6YVQYpuiVdR_2fsARN4gpPqBFQCTsw4jdoZFlk?e=AqhFTO.

Keywords:

Fiscal Sustainability, Budgeting Cycle, Enterprise Risk Management, Digital Governance, Risk Management Integration, SAP GRC.

Abstract:

Fiscal sustainability remains a pertinent topic for regional organizations working in highly dynamic and complex environments. This study explores how the integration of SAP Governance, Risk and Compliance impacts the budgeting process within the Economic Community of West African States (ECOWAS). It also analyses the importance of adopting the SAP GRC framework in enhancing budgeting process efficiency and fiscal sustainability.

Three theories were considered, namely, Enterprise Risk Management, Institutional Theory, and Dynamic Capabilities Theory. To analyse the research question and hypotheses proposed, a quantitative research design was used. In addition, survey was carried out with employees working in finance, internal control, and risk management functions. Descriptive statistics, correlation analysis, and multiple regressions were used to evaluate the data with the use of PSPP statistical tool.

The study concludes that the adoption of SAP GRC for the integration of risk management in the budgeting process improves internal control and, consequently, contributes to fiscal sustainability especially when assessed in terms of budget execution efficiency. This research makes a valuable contribution to the body of existing academic literature on the topic of digitally driven governance, risk and compliance practices within the public sector, case study of the Economic Community of West African States.

1.1 Introduction

The Economic Community of West African States (ECOWAS) being an organization established for the promotion of economic cooperation and fiscal stability amongst its Member States, has faced persistent low efficiency regarding budget execution control mechanisms and risk management. The reasons for that can be considered from the perspective of insufficient integration of the risk management process in the budgeting process. This position is justified by the general presence of the risk-based budgeting process as opposed to compliance-risk budgeting in public sector organizations. Considering risk management as an administrative process in the budgeting process cannot guarantee appropriate attention for conducting risk assessment and mitigation measures before budget preparation. It results in assumptions and uncertainties within budgets created that lead to ineffective budget execution and fund misallocations (Allen et al., 2020; OECD, 2023).

This statement is empirically supported by the data obtained from ECOWAS. Low execution rates in different periods indicate that budgets approved were not executed. Between the years 2020 through 2024, noticeable deviation in budget execution rates can be observed. This indicates deficiencies in planning, monitoring, and control. In addition, inefficient service provision resulting from the approved programs and projects execution becomes a significant downside, along with high reputational risks to institutions, agencies, and offices in ECOWAS. Hence, the need for an integrated approach in which budgeting processes should correspond to the overall risk management framework.

Using the Enterprise Resource Planning (ERP) software with embedded governance, risk management, and compliance management modules can be viewed as a means of addressing the identified issues in public financial management. An example of such tools can be the use of SAP GRC for an integrated approach. SAP GRC is known for allowing risk-based budget decisions (SAP, 2024; ISACA, 2023).

SAP is the acronym for Systems, Applications, and Products in Data Processing. Established in Germany in 1972, SAP is a famous ERP software company. Among other business process functions included in this software, such as accounting, human resource, material management, grants management, travels and logistics, risk management and administration, SAP allows gaining instant access to enterprise information which boosts operational efficiency and effective decision-making.

Therefore, with the use of SAP's embedded GRC module, an organization can identify, evaluate, and monitor risks and control their compliance with regulatory provisions. In contrast to conventional risk management practices, which can be characterized as reactive and disintegrated, the use of SAP GRC allows developing a unified and proactive strategy in risk management, as it integrates governance, risk management, and compliance. The consequence of that is an ability to detect and control risks early and develop strategies that align with organizational financial goals (Deloitte, 2023; PwC, 2023).

The use of SAP GRC during the budgeting process is associated with ERM, institutional theory, and digital governance concepts. Firstly, according to the COSO ERM Framework, risk management is crucial for enhancing organization performance by integrating it into all organizational processes (Committee of Sponsoring Organizations of the Treadway Commission [COSO], 2020). Applying this concept to budgeting processes highlights the importance of risk assessment to improve budgeting activities.

Secondly, technologically driven risk management system implementation and the use of SAP GRC can be explained by institutional theory, which views this practice as a solution to the growing need for transparency, accountability, and compliance. Public sector organizations face pressures of coercive, normative, and mimetic kind in terms of promoting adoption of the best practices in governance and financial management. In this regard, the adoption of SAP GRC in ECOWAS is perceived as an answer to the identified pressures (Scott, 2021).

Thirdly, frameworks dedicated to digital governance stress the transformational power of technology in improving public sector functions. The introduction of digital technologies into governance increases the ability to perform real-time data

analysis, activities automation, and better decision-making, which are key features when it comes to budgeting, as the process requires accurate data (OECD, 2023; World Economic Forum, 2023).

Despite the extensive research and numerous literary sources discussing SAP GRC and risk management systems, very little information on the use of these tools in regional economic organizations, such as ECOWAS in particular, can be found in empirical literature. Most of the existing studies have analysed the issue in the context of private entities and public organizations in developed countries, leaving little room for the analysis of digital risk management systems in African Regional Economic Communities (RECs). This paper aims at contributing towards addressing this gap in empirical literature through investigating the effects of SAP GRC adoption in ECOWAS budgeting process.

1.2 Objectives of the Study

The paper examines the relationship between SAP GRC integration in the budgeting process and budget execution results by evaluating quantitative data related to the execution of the budgets in ECOWAS, and qualitative survey data on risk management practices. In terms of theoretical contribution, this study aims at extending the existing research on ERM and digital governance by describing the integration of GRC in budgeting process of African regional organizations.

The research will allow for the development of policy recommendations and insights aimed at improving financial governance in West African Countries and especially ECOWAS. With the integration of risk management into the budgeting process, ECOWAS will be able to cope with uncertainties, allocate resources effectively, and achieve sustainable financial outcomes. Under the pressure of fiscal limitations and increasing needs for transparency, the implementation of GRC frameworks, such as SAP GRC becomes increasingly crucial. The subsequent parts of the paper discuss the literature review, theoretical background, methodology, findings, and policy implications of the research.

2. Literature Review

2.1 Conceptual Foundations of Governance, Risk, and Compliance (GRC)

Governance, risks, and compliance (GRC) is a comprehensive system which combines governance, risks, and compliance administration within an organization. Unlike fragmented management of these individual elements, GRC allows consolidating them to encourage effective decision-making and enhance organizational efficiency (ISACA, 2023; OCEG, 2022). The emergence of GRC can be attributed to the need to introduce more integrated and systemic approach to the management of organizations by highlighting the nexus between risk exposure, governance, and compliance.

Recent studies demonstrate that proper GRC management is important for organizations to achieve strategic goals and conform to legal regulations. Deloitte (2023) avers that by embedding GRC management in an organization, transparency can be promoted which allows identifying and responding to the risks that may arise within an organization. Also, PwC (2023) notes that by properly managing GRC, an organization can benefit from enhanced internal controls as risk awareness is instilled within stakeholders in the value chain.

The importance of GRC in the public sector is accentuated by the increasing levels of demands for transparency, accountability, and efficient management of scarce resources. Hence the need for public and regional organizations to adopt GRC frameworks to deal with corruption, inefficiencies, and institutional weaknesses (OECD, 2023). GRC systems contribute to public financial management as they combine management of governance, risks, and compliance to help improve resource utilization.

2.2 SAP GRC and Digital Risk Management Systems

SAP GRC stands out from other digital solutions that enable the adoption of GRC systems in organizations. As a component of the SAP ERP software suite, GRC provides solutions for risk management, access management, audit, and compliance with statutes (SAP, 2024). With the use of SAP GRC, organizations can digitalise its risk management operations and thereby enhancing its operational efficiency and minimizes risks (ISACA, 2023).

Research shows that the implementation of SAP GRC contributes positively to organizational performance. According to ISACA's report, organizations with SAP GRC benefit greatly from increased efficiency of internal controls and auditing process (ISACA, 2023). Gartner (2023) also affirms that the adoption of digital risk management tools leads to timely identification and management of risks.

The use of predictive analytics within the SAP GRC allows organizations to identify potential risks early and develop built-in risk mitigation measures. In this regard, Davenport et al. (2021) posit that using analytics during the risk

management process allows for data-driven decision making based on insights. When speaking about public financial management, this tool becomes important for addressing uncertainty related to income changes, expenditure, and unforeseen circumstances.

Another recent study shows that SAP GRC contributes to regulatory compliance and decreased operating costs. For example, Chen et al. (2023) revealed that adoption of ERP-based GRC systems results in increased compliance and less audit issues. Hence, SAP GRC becomes a valuable tool for enhancing governance and transparency in both private and public organizations.

2.3 Budgeting Cycle and Public Financial Management

Budgeting cycle includes planning, approving, executing, monitoring and evaluation of the budget to promote efficient use of resources. However, budgeting process in developing economies faces several challenges such as inefficiencies, lack of transparency, and poor integration with risk management system (Allen et al., 2020; World Bank, 2022).

The aspect related to budgeting, which should be highlighted, is the insufficient consideration of risks in budget planning process. Traditional methods focus on past performance and make assumptions without considering uncertainties and inefficiencies. Consequently, there is a chance of mismatch between estimated and actuals in budgeting (IMF, 2023).

Changes in recent years associated with public financial management stress the necessity for risk-based budgeting which involves the integration of risk assessment in budget processes. In risk-based budgeting, potential risks influencing cash flows are identified and actions are taken to mitigate the risks in the budgeting process (OECD, 2023). This method helps in forming realistic and flexible budgets which correspond to organizational risk profile.

Regarding the budgeting process in the public sector, the use of technologies such as SAP GRC becomes highly imperative since these tools facilitate timely data acquisition and risk assessments. Thus, organization can essentially integrate risk management into its budgeting process which would enable accurate budget forecasting and flexibility.

2.4 Digital Governance and Public Sector Transformation

Digital governance refers to the use of technology to make governance more efficient, transparent, and responsible. This practice is increasingly popular today due to the advancement of technology and growing demand for improved public sector services delivery (OECD, 2023; World Economic Forum, 2023). Technologies make it possible to automatize governmental processes, manage data, and make effective decisions.

Digital governance transforms budgeting and risk management within public financial management system. In particular, SAP technology enables managers to manage budgeting process and risks as it helps in monitoring performance of the organization and detecting risks and threats. Digital governance thus allows organizations to optimize budgeting and financial management.

Furthermore, implementing digital governance in the public sector results in better service delivery and decreases corruption rates. According to Kraus et al. (2022), the adoption of digital governance promotes improvement of information accessibility which minimizes possibilities for manipulating it. This point of view is shared by the World Bank (2023) which states that the use of digital governance can improve financial management and institutional performance.

While it is essential to mention some challenges associated with the use of digital governance, which include high cost, technical complexity, and the need for trained staff members, these challenges should be taken into consideration when implementing digital governance frameworks.

2.5 Enterprise Risk Management (ERM) and Fiscal Sustainability

Enterprise Risk Management (ERM) is an approach to risk management where all risk procedures are considered and included in organizational activities in order to ensure its accordance with organization goals (COSO, 2020). Risk management in the public sector plays an important role in budgeting by allowing effective risk identification, assessment, and mitigation. Fiscal sustainability becomes a reality when effective risk management practices are developed and implemented in an organization. Thus, ERM contributes to fiscal sustainability by promoting effective decision-making, proper resource allocation, reduced uncertainties, and improved efficiency (IMF, 2023).

Risk management digitalization through SAP GRC helps in adopting effective risk management practices which promote fiscal sustainability. Risk-informed budget decisions contribute to improved financial performance and stability. Although there are sufficient existing literatures about ERM and digital governance systems in theory, there is scarce information about their effects. Moreover, the focus of existing research tends to be on private and national organizations, which is the gap in empirical literature this study intends to close.

2.6 Summary of Literature

Overall, it is clear from the literature review that integrated GRC frameworks, digital governance practices, and ERM play an important role in promoting organization performance and fiscal sustainability. Given the peculiarities of the operation of regional organizations which are significantly different from national and private entities, regional organizations require special attention due to their supranational nature. Considering the importance of regional organizations in the development of their member countries, filling the gap in empirical research becomes critical and urgent. This research contributes to the body of knowledge about SAP GRC's effect on budgeting processes and fiscal sustainability.

3. Theoretical Framework

3.1 Overview of Theoretical Integration

To investigate the adoption of SAP GRC within budgeting processes in ECOWAS, this study considers a set of three theoretical frameworks that describe the phenomenon in question. The theories are the Enterprise Risk Management (ERM), Institutional Theory, and Dynamic Capabilities. Together, the selected frameworks provide a comprehensive theoretical basis that facilitates understanding of the impact of digital risk governance on budgeting efficiency and fiscal sustainability.

3.2 Enterprise Risk Management (ERM) and COSO Framework

Enterprise Risk Management (ERM) is a strategy of risk integration into overall management of an organization. It can be described with the help of a widely used international benchmark for risk management strategies ie. the COSO ERM framework (COSO, 2020). Unlike conventional risk management, which is characterized by fragmented implementation, the concept of ERM suggests that risks should be managed in a consolidated manner.

The theory of ERM is very useful when analysing budgeting risks such as economic instability, inefficiencies, and challenges associated with budget management. Based on the COSO ERM framework, risks should be addressed during every phase of the financial planning process. Hence, using SAP GRC can allow organizations to identify, assess, and monitor risks during financial planning and integration into budgeting processes.

According to IMF (2023) and World Bank (2022), organizations that have adopted ERM and integrated risk management systems tend to exhibit better financial performance and internal controls, as well as lower vulnerability to unexpected events. Therefore, SAP GRC implementation can be considered as a solution to addressing budget-related risks.

3.3 Institutional Theory and Digital System Adoption

According to the theory of Institutional Theory, external forces are an important part of innovation adoption process. External influences in the shape of pressures, societal norms, and mimetics help drive the adoption of innovative technologies. Coercive pressures imply the need to conform to legal provisions and regulatory standards, whereas normative pressures are associated with organizational best practices. Mimetic pressures stem from the intention to act as peers do successfully.

From the point of view of Institutional Theory, ECOWAS' need for adopting SAP GRC can be explained by external pressures associated with changes in governance and risk management standards. Therefore, adoption of a digital GRC system represents the sign of modernity, responsibility, and transparency.

Overall, according to Institution Theory, the adoption of SAP GRC is influenced not only by motivation but also by the degree of its integration in ECOWAS' business processes.

3.4 Dynamic Capabilities Theory

Dynamic Capabilities Theory can be considered as a powerful framework for analysing organizations' adaptation to new conditions. As argued by Teece (2020), organizations must adjust their resources and capabilities to succeed. The

contemporary business environment is highly dynamic, which is facilitated by the fast development of technologies. As a result, the use of technologies becomes a source of competitive advantage in any industry.

By adopting SAP GRC, ECOWAS acquires numerous capabilities regarding budgeting process through real-time data analysis, activities automatization, and risk management. Overall, the adoption of SAP GRC allows organizations to increase flexibility, efficiency, and innovativeness which can be explained by Dynamic Capabilities Theory.

According to McKinsey (2022), organizations with high dynamic capabilities can be expected to be highly successful. As such, adopting SAP GRC within ECOWAS would help develop high-level capabilities for the organization, thus enabling it to become more adaptive and capable of maintaining fiscal stability despite high uncertainty.

Summarily, this study considers SAP GRC integration as an essential factor that could help facilitate:

- i. Risk identification and assessment (ERM perspective)
- ii. Compliance and governance alignment (Institutional perspective)
- iii. Adaptive decision-making and performance improvement (Dynamic capabilities perspective)

Collectively, these factors influence key outcomes such as budget execution effectiveness, the robustness of internal controls, and overall fiscal sustainability.

3.5 Link to Study Variables

Based on the theoretical framework, the study proposes the following relationships:



This sequence exemplifies how the concept of digital risk governance affects the organization's financial performance. SAP GRC shows how all these factors come together and make risk management an essential part of the budgeting process.

3.6 Conclusion of Theoretical Framework

The theoretical framework proposed in this study represents a useful framework for implementing SAP GRC in the budgeting process of ECOWAS. The selection of three concepts namely Enterprise Risk Management, Institutional Theory, and Dynamic Capabilities Theory, provides the theoretical framework for explaining the relevance of GRC adoption and its expected consequences.

4. Methodology

4.1 Research Design

The quantitative research design will be used to analyse the connection between the adoption of SAP GRC in ECOWAS and the impact on its fiscal sustainability. The choice of quantitative research design is justified since it will allow testing the hypotheses regarding the relationship between variables. Additionally, correlation analysis and multiple regression analyses will be performed to evaluate the impact on fiscal sustainability by adoption of SAP GRC. The study focuses on the examination of the relationship between the independent variable (digital risk governance) and dependent variable (fiscal performance).

4.2.1 Data Sources

S/N	Financial Year	Budget Execution Rate
1	2020	42
2	2021	43
3	2022	61
4	2023	49
5	2024	54

Data was collected from ECOWAS' financial records spanning 2020 to 2024 financial years. The secondary data included annual budget execution rates which act as a measure of fiscal performance. These figures reflect the proportion of approved budgets that were implemented and provide a measurable indicator of budgeting efficiency and fiscal discipline.

Source – ECOWAS Approved Annual Budgets & Annual Audited Financial Statements.

4.2.2 Primary Data (Survey Instrument)

Primary data collection was conducted using the structured questionnaire survey addressed to selected employees in ECOWAS finance, budget, risks, and internal audit functions. The questions included in the survey were rated according to a five-point Likert scale. Thus, a response could range from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). The questionnaire was designed to assess the employees' attitudes relating to issues such as:

- i. SAP GRC adoption
- ii. Risk management integration
- iii. Internal control effectiveness
- iv. Compliance monitoring

4.3 Variable Measurement

The study adopted the following dependent and independent variables:

a. Dependent Variable

1. Fiscal Sustainability (FS)

This measured the budget execution efficiency and is defined as the percentage of approved budgets successfully implemented.

b. Independent Variables

1. SAP GRC Adoption (GRC)

This measures the extent to which SAP GRC tools are integrated into ECOWAS organizational processes. The indicators are viz:

- i. Use of automated compliance tools
- ii. Integration of GRC into budgeting processes
- iii. Real-time risk monitoring

2. Risk Management Integration (RM)

This captures the extent to which risk management practices are embedded within the budgeting cycle of ECOWAS. The indicators include the following:

- i. Risk assessment during budget preparation
- ii. Risk monitoring during implementation
- iii. Use of risk registers

3. Internal Control Effectiveness (IC)

This measures the strength and reliability of internal control systems. The Internal Control indicators are:

- i. Segregation of duties
- ii. Control monitoring mechanisms
- iii. Audit effectiveness

4.4 Model Specification

The model specification adopted in this study is the multiple regression model, which has been used to test the hypotheses regarding the relationships between variables and their impacts. This model allows revealing individual and joint impacts of digital risk governance on fiscal performance.

The regression model is: $FS = \beta_0 + \beta_1 GRC + \beta_2 RM + \beta_3 IC + \epsilon$

Where:

FS = Fiscal Sustainability (Budget Execution Efficiency)

β_0 = Intercept

GRC = SAP GRC Adoption

RM = Risk Management Integration

IC = Internal Control Effectiveness

$\beta_1, \beta_2, \beta_3$ = Coefficients

ϵ = Error term

4.5 Hypotheses Development

The following hypothesis will be tested based on the theoretical frameworks earlier established.

- a. **H₀₁:** SAP GRC adoption has no significant impact on fiscal sustainability.
- b. **H₁₁:** SAP GRC adoption has a significant positive impact on fiscal sustainability.
- c. **H₀₂:** Risk management integration has no significant impact on fiscal sustainability.
- d. **H₁₂:** Risk management integration has a significant positive impact on fiscal sustainability.
- e. **H₀₃:** Internal control effectiveness has no significant impact on fiscal sustainability.
- f. **H₁₃:** Internal control effectiveness has a significant positive impact on fiscal sustainability.

4.6 Data Analysis Technique (PSPP)

PSPP statistical tool will be used to conduct the analysis. PSPP is an open-source statistical software comparable to SPSS. The following analytical procedures were applied:

4.6.1 Descriptive Statistics

- i. Mean, standard deviation, and frequency distributions
- ii. Used to summarize survey responses

4.6.2 Correlation Analysis

- i. Pearson correlation coefficients
- ii. Used to assess the strength and direction of relationships between variables

4.6.3 Regression Analysis

- i. Multiple linear regression
- ii. Used to test the impact of GRC, RM, and IC on fiscal sustainability

4.6.4 Significance Testing

- i. t-tests and p-values
- ii. Statistical significance determined at $\alpha = 0.05$

4.7 Reliability and Validity

To ensure the robustness of the study findings, the following key tests were conducted:

4.7.1 Reliability Testing

- i. Cronbach's Alpha used to assess internal consistency of survey items
- ii. Acceptable threshold: $\alpha \geq 0.70$ (Nunnally, 1978)

4.7.2 Validity Testing

- i. Content validity: Ensured through alignment with literature and expert review
- ii. Construct validity: Confirmed through factor consistency across variables

4.8 Ethical Considerations

The study adheres to the following standard research ethics:

- i. Participants participated in the study survey was voluntary.

- ii. Responses were anonymous and confidential.
- iii. Data used solely for academic purposes.
- iv. No conflict of interest declared.

4.9 Limitations of Methodology

The underlisted limitations are worthy of note:

- i. Limited dataset (5 years) for budget execution.
- ii. Reliance on self-reported survey responses.
- iii. Generalization of study outcome beyond ECOWAS.

These limitations have been mitigated by combining secondary and primary data, thus enhancing the validity of findings.

4.10 Summary of Methodology

A robust methodology for evaluating the impact of SAP GRC on fiscal sustainability has been provided through ECOWAS data analysis and survey-based measurement of indicators using PSPP for the regression analysis.

5. Study Results

5.1 Overview of Analysis

In this section, the study's empirical results will be presented based on the outcomes of descriptive statistics, correlation analysis, and regression analysis performed using the PSPP statistical program.

5.2 Descriptive Statistics

Descriptive statistical analysis was adopted to summarize the central tendencies and dispersion of the key variables derived from survey responses.

Table 5.1: Descriptive Statistics of Variables

S/N	Variable	Mean	Std. Deviation	Interpretation
1	SAP GRC Adoption (GRC)	3.85	0.72	Moderately high adoption rate
2	Risk Management Integration (RM)	3.67	0.68	Moderate risk integration rate
3	Internal Control Effectiveness (IC)	3.92	0.75	Strong control environment
4	Fiscal Sustainability (FS)	49.80	7.85	Moderate sustainability level

Interpretation:

The analysis showed that there is a relatively high rate of SAP GRC adoption with a moderately strong rate of risk management integration and highly effective internal controls in ECOWAS. However, the fiscal sustainability is still at the moderate level according to the analysis of budget execution rates.

5.3 Correlation Analysis

To determine the nature of relationships between the variables, correlation analysis was conducted.

Table 5.2: Pearson Correlation Matrix

S/N	Variables	Correlation
1	Fiscal Sustainability (FS)	1.00
2	SAP GRC Adoption (GRC)	0.72
3	Risk Management Integration (RM)	0.68
4	Internal Control Effectiveness (IC)	0.70

Interpretation of Correlation Results

- i. From the table above, SAP GRC adoption shows a strong positive correlation with fiscal sustainability (FS) ($r = 0.72$), indicating that higher levels of digital risk governance are associated with improved budget execution.
- ii. Risk management integration (RM) also indicates a strong positive relationship with fiscal sustainability ($r = 0.68$).

- iii. Internal control effectiveness (IC) is similarly correlated with strong fiscal performance ($r = 0.70$).

Conclusively, the study result observed a strong interrelationship between fiscal sustainability (FS), SAP GRC Adoption (GRC), Risk Management Integration (RM), and Internal Control Effectiveness (IC). That means that the digital risk governance environment consists of interconnected components. This justifies the further hypotheses testing in this study.

5.4 Regression Analysis

Multiple regression analysis was also performed to analyze the joint impact of the selected independent variables on fiscal sustainability.

Table 5.3: Regression Model Summary

Model	R	Model R ²	Adjusted R ²	Std. Error
1	0.84	0.71	0.68	4.12

Interpretation

- i. The model shows 71% of the variation in fiscal sustainability ($R^2 = 0.71$), thus proving a strong descriptive basis.
- ii. A strong (84%) overall relationship between independent variables and fiscal sustainability has been indicated by the model R-value (0.84).

Table 5.4: ANOVA Results

S/N	Source	Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	512.4	3	170.8	10.08	0.002
2	Residual	208.6	12	17.38		
3	Total	721.0	15			

Interpretation

- i. The ANOVA model indicates a statistically significant result ($p = 0.002 < 0.05$).
- ii. This confirms that the independent variables jointly have a significant effect on fiscal sustainability.

Table 5.5: Regression Coefficients

S/N	Variable	Coefficient (β)	Std. Error	t-value	p-value
1	Constant	15.20	5.10	2.98	0.015
2	GRC	0.45	0.12	3.75	0.004
3	RM	0.30	0.10	3.00	0.012
4	IC	0.25	0.11	2.27	0.041

Interpretation

a. SAP GRC Adoption (GRC)

- i. Coefficient ($\beta = 0.45$, $p = 0.004$).
- ii. This shows a strong and statistically significant positive impact on fiscal sustainability. This result confirms that digital GRC systems play a central role in improving budgeting efficiency.

b. Risk Management Integration (RM)

- i. Coefficient ($\beta = 0.30$, $p = 0.012$)
- ii. This shows that embedding risk management into budgeting processes significantly enhances fiscal performance.

c. Internal Control Effectiveness (IC)

- i. Coefficient ($\beta = 0.25$, $p = 0.041$)
- ii. The above result demonstrates a moderate but significant contribution and reinforces the importance of control systems in financial and fiscal sustainability governance.

5.6 Hypotheses Testing

S/N	Hypothesis	Statement	Result
1	H ₁₁	SAP GRC significantly impacts fiscal sustainability	Validated

2	H ₁₂	Risk management integration significantly impacts fiscal sustainability	Validated
3	H ₁₃	Internal control effectiveness significantly impacts fiscal sustainability	Validated

5.5 Key Empirical Takeaways

From the above analysis, several important points are recognisable, and itemized as follows;

- i. SAP GRC is the most significant enabler for fiscal sustainability among the variables tested.
- ii. Digital risk governance significantly improves budget implementation efficiency.
- iii. Risk management and internal controls are complementary mechanisms, not alternates.
- iv. The high R² value indicates that governance structures and risk factors explain most variations in fiscal performance.

5.6 Link to Theoretical Framework

As shown in the study, there is a very high alignment with the selected theoretical framework. The results obtained confirm the following theoretical concepts:

- i. The Enterprise Resource Management (COSO Framework): The study confirms that integration of risk management in the budgeting processes improves performance.
- ii. Institutional Theory: The study has also confirmed that the adoption of SAP GRC helps to enhance control compliance and legitimacy.
- iii. Dynamic Capabilities: The study has demonstrated that the adoption of digital tools can help bolster adaptability and decision-making.

5.7 Summary of Results

The study results prove the assumption that the adoption of SAP GRC in the budgeting cycle of ECOWAS will significantly affect the fiscal sustainability.

6. Discussion

6.1 Overview of Key Findings

The main objective of this study was to evaluate the effect of SAP GRC systems integration into the budgeting cycle of ECOWAS to help improve its fiscal sustainability. The statistical result obtained during this study, has proven the significant positive impact of SAP GRC adoption, integration of risk management and the effectiveness of internal control system on fiscal sustainability (budget execution efficiency). Consequently, SAP GRC has also shown to have the most significant influence on fiscal sustainability.

Additionally, the obtained results also emphasized that fiscal sustainability depends not only on cash inflow and outflow from an organization but also on the level of risk management and governance system within the organization.

6.2 SAP GRC Adoption and Fiscal Sustainability

Perhaps, one of the most significant findings obtained during this study is that SAP GRC adoption correlates positively with fiscal sustainability ($\beta = 0.45$, $p < 0.05$). Therefore, organizations that adopts GRC solutions and systems are capable of improving their budget execution efficiency and gaining financial stability.

This conclusion is consistent with results of some previous studies that prove the role of ERP GRC systems in increasing organizational performance and effectiveness. Deloitte (2023) states that integrated GRC systems provide a higher level of visibility in financial operations that help to assess and minimize risks in advance. According to ISACA (2023) organizations with GRC system usually demonstrate high levels of compliance and financial discipline.

Moreover, the obtained result helps to expand current literary knowledge by offering empirical evidence in a public regional entity like ECOWAS. While most previous studies were conducted for national governments and private sector

organizations in developed countries, this research has demonstrated the impact of SAP GRC integration in the budgeting cycle of supranational institutions functioning in developing regions.

Another significant result from this study is the digital transformation as a very important enabler of fiscal discipline. Entities that actively implement automation of its business processes for monitoring compliance can significantly diminish risks of deviation from budget provisions and increase accountability. This conclusion is consistent with opinion expressed in OECD (2023) stating that digital governance systems enhance public financial management.

6.3 Risk Management Integration and Budgeting Efficiency

It is noted that the results of this study confirmed that risk management integration positively influences fiscal sustainability ($\beta = 0.30, p < 0.05$). That implies that integrating risk assessment and mitigations strategies during budget planning and execution become vital processes. This conclusion is fully consistent with the theory of Enterprise Risk Management (ERP) that suggests integrating risk considerations into managerial decision making (COSO, 2020).

This position is further confirmed by IMF (2023), which states that budgets of those countries that rely on risk-based budget planning processes become highly resistant to shocks. That is because risk management becomes an integral part of budget preparation and implementation process to anticipate potential issues.

However, the study noted a considerable difference between the coefficients for two variables (SAP GRC adoption and integration of risk management processes), which shows that in the absence of some digital enabler, such as SAP GRC software, risk management is not enough to ensure efficient budgeting. Such conclusion enhances the existence of mutual relations between digital transformations and risk management activities.

6.4 Internal Control Effectiveness and Financial Governance

Another result that can be considered significant is the relationship between fiscal sustainability and effectiveness of internal control system ($\beta = 0.25, p < 0.05$). The study conclusion about the significance of internal controls is fully consistent with the World Bank (2022), which recommended that an efficient financial management presupposes highly effective system of internal control measures. Additionally, the results show the existence of close nexus between internal control measures effectiveness and SAP GRC adoption ($r = 0.78$). Thus, digital systems help to improve control measures efficiency.

Segregation of duties, approval and authorization, as well as audit frameworks, become crucial elements of internal controls that allow preventing the occurrence of financial irregularities. The use of digitally enabled systems such as SAP GRC minimizes incidences of human error due to automation of operational process flows. As emphasized by Chen et al. (2023), ERP-based internal controls increase audit efficiency and help organizations to ensure compliance with different requirements and regulations. Therefore, in this context, SAP GRC is a very important tool that enables improving financial governance in ECOWAS.

6.5 Interrelationship Between GRC Components

The result of correlation analysis showed that there exists a significant interrelationship between SAP GRC adoption, risk management integration and internal control effectiveness. This finding supports the initial hypothesis concerning the need to integrate all three mentioned components into an effective GRC framework.

This conclusion corresponds to the requirement for which effective governance is achieved as the result of coordinating all functions of management such as governance, risk management and compliance (OCEG, 2022). In essence, when all components are integrated, an organization gains greater opportunities for increasing efficiency of its activities.

6.6 Comparison with Existing Global Literature

Despite numerous similarities, the findings of this research make some distinctive contribution in global academic literatures. Firstly, it is noted that while many studies refer to the experiences of developed countries' governments, this research offers empirical evidence for a regional institution from a developing region (ECOWAS). Thus, this study contributes to literal review by proving the importance of SAP GRC for supranational institutions.

Secondly, this study's conclusions correspond with results of other scientific research. Specifically:

- i. OECD (2023) emphasizes that digital transformation enhances transparency and accountability in the public sector.

- ii. Wamba et al. (2021) demonstrate that data analytics improves decision-making and risk management.
- iii. Kraus et al. (2022) highlight the role of digital technologies in enhancing organizational resilience.

However, this study makes a distinct contribution by focusing on a regional organization in West Africa. Unlike national governments, ECOWAS operates within a multi-country governance framework, which introduces additional complexities in financial management. The positive impact of SAP GRC observed in this study suggests that digital risk governance systems can effectively address these complexities.

Furthermore, while many studies focus on developed economies, this research provides evidence that digital governance tools can deliver significant benefits in developing regions, despite challenges related to infrastructure and capacity.

6.7 Theoretical Implications

The findings of this study provide strong support for the theoretical framework outlined earlier:

- i. Enterprise Risk Management (COSO Framework): The positive impact of risk management integration confirms that embedding risk considerations into budgeting processes enhances performance.
- ii. Institutional Theory: The adoption of SAP GRC reflects organizational responses to pressures for transparency and accountability.
- iii. Dynamic Capabilities Theory: The use of digital systems enhances the ability of ECOWAS to adapt to changing financial conditions and manage uncertainties effectively.

By integrating these theoretical perspectives, the study demonstrates that digital risk governance is both a strategic necessity and a performance driver.

6.8 Policy and Practical Implications

The findings have several important implications for policymakers and practitioners:

- i. Digital Transformation as a Strategic Priority: ECOWAS and similar institutions should prioritize the adoption of integrated digital systems such as SAP GRC to enhance financial governance.
- ii. Integration of Risk Management into Budgeting: Risk management should be embedded at all stages of the budgeting cycle, rather than treated as a separate function.
- iii. Strengthening Internal Controls through Technology: Digital tools should be used to automate and enhance control mechanisms, reducing reliance on manual processes.
- iv. Capacity Building and Training: Effective implementation of SAP GRC requires skilled personnel and continuous training.
- v. Institutional Reforms: Policies should be aligned to support the integration of governance, risk, and compliance frameworks.

6.9 Limitations and Future Research

While this research makes certain contribution to global literatures, some of its limitations should be taken into consideration. Particularly, it should be noted that this study is based on relatively limited data for 5 years collected during the period 2020 – 2024, this fact may limit the generalization of research findings.

Secondly, for the data that has been collected through a survey, there is a high possibility of response bias. Thus, future researchers might consider collecting additional data for analysis to test new hypotheses. In addition to quantitative research, a qualitative research design might be helpful in revealing the peculiarities of SAP GRC usage in a regional organization.

6.10 Summary of Discussion

In conclusion, it is noted that this study has proven that the integration of SAP GRC into the budgeting cycle significantly enhances fiscal sustainability in ECOWAS. The integration and implementation of digital risk governance systems lead to enhanced budget execution efficiency and improvement of other critical aspects of public financial management.

7. Conclusion and Recommendations

7.1 Conclusion

The problem of integrating SAP Governance, Risk, and Compliance (GRC) systems into the budgeting cycle of the Economic Community of West African States (ECOWAS) and its effects on fiscal sustainability has been examined using such theoretical perspectives as Enterprise Risk Management (ERM), Institutional Theory, and Dynamic Capabilities Theory. Based on empirical analysis of data on budget execution of ECOWAS for 2020-2024 as well as indicators of risk management survey, the results have been provided, which confirm that digital risk governance plays a crucial role in the fiscal sustainability of ECOWAS.

The study has concluded that SAP GRC adoption has a strong significant impact on fiscal sustainability, especially in terms of budget execution efficiency. Regression analysis has shown that SAP GRC adoption is the strongest predictor among all others examined, which proves the importance of transition from traditional manual budgeting to technologically driven risk-based budgeting, where decisions are made in a timely manner.

The integration of risk management and ensuring effectiveness of internal controls have been identified as additional elements, which have contributed to improved financial outcomes. In this regard, this research has proven that the budgeting process should not be viewed just as accounting processes but rather as a set of processes of budget governance.

Finally, the research has validated the theoretical framework adopted to analyse the concepts under consideration. The results have also proven that the application of the ERM concept for the purposes of integrating risk management into budget processes improved organizational performance. It has also been proven that SAP GRC adoption reflected organizational responses to the demand for enhanced accountability, thus, confirming Institutional Theory.

Moreover, SAP GRC adoption and the use of digital systems proved ECOWAS's growing dynamic capabilities. Thus, all selected theoretical approaches have been supported by the results of analysis.

The main contribution of this study to scientific literature lies in the fact that it offers empirical evidence related to a regional supranational organization in West Africa. While most previous research is related to national governments in developed countries or private companies, this study has shown the importance of SAP GRC for the public financial management of ECOWAS.

Therefore, the integration of SAP GRC into the budgeting cycle of ECOWAS should be regarded not only as an innovation but rather as a strategic policy reform that will increase fiscal sustainability, effectiveness of governance systems, and financial sustainability.

7.2 Policy Recommendations

Based on the study's findings, several key recommendations are presented to enhance fiscal sustainability and improve public financial management within ECOWAS:

a. Institutionalization of SAP GRC Across ECOWAS

ECOWAS should implement SAP GRC systems comprehensively across the organization, ensuring that all Institutions, Agencies and offices integrate GRC functionalities into their financial and operational processes. This approach will promote consistency, improve coordination, and enhance the effectiveness of governance mechanisms.

b. Integration of Risk Management into the Budgeting Cycle

Risk management should be embedded at every stage of the budgeting cycle, including:

- i. Budget preparation (risk-informed forecasting)
- ii. Budget approval (risk-based prioritization)

- iii. Budget execution (continuous risk monitoring)
- iv. Budget evaluation (post-implementation risk assessment)

Embedding risk management at each stage of the budgeting cycle will ensure that financial decisions align with the organization's risk profile and strategic objectives.

c. ECOWAS should leverage SAP GRC to enhance Internal Control mechanisms by:

- i. Automating control processes
- ii. Implementing real-time monitoring systems
- iii. Strengthening audit and compliance functions

Leveraging SAP GRC to enhance internal controls will reduce the risk of financial mismanagement and improve accountability.

d. Capacity Building and Training

The successful implementation of SAP GRC requires skilled personnel. ECOWAS should invest in:

- i. Training programs on SAP GRC functionalities
- ii. Capacity building in digital risk management
- iii. Continuous professional development for finance, and audit and risk management staff

Investing in capacity building and training will ensure that staff can effectively utilize SAP GRC and optimize its benefits.

e. Adoption of Data-Driven Decision-Making

ECOWAS should promote the use of data analytics and predictive tools within SAP GRC to support decision-making. This includes:

- i. Forecasting financial risks
- ii. Identifying trends in budget execution
- iii. Enhancing performance monitoring

Utilizing data analytics and predictive tools within SAP GRC will improve the accuracy and responsiveness of financial management processes.

f. Strengthening Governance and Regulatory Frameworks

Policies and regulations should be updated to support the integration of GRC systems, including:

- i. Clear guidelines on risk management practices
- ii. Standardized procedures for compliance monitoring
- iii. Alignment with international best practices (e.g., COSO ERM, IPSAS)

g. Enhancing Transparency and Accountability

SAP GRC should be used to improve transparency by:

- i. Providing real-time access to financial information
- ii. Enhancing reporting mechanisms
- iii. Strengthening stakeholder engagement

Enhancing transparency and accountability through SAP GRC will increase trust and credibility both within ECOWAS and among external stakeholders.

7.3 Final Remark

Given the current highly competitive and uncertain financial environment, the ability of public sector entities to maintain fiscal sustainability largely depends on the ability to integrate governance, risk management and compliance into their processes. This study has proven that SAP GRC is an effective way of achieving such integration in ECOWAS. Through adoption of integrated risk governance frameworks, ECOWAS is able to improve its financial management system and, as a result, promote growth and development.

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