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ADDIS ABABA UNIVERSITY

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MASTER OF BUSINESS ADMINISTRATION (MBA)

THE IMPACT OF DATA GOVERNANCE MATURITY ON BUSINESS PERFORMANCE OF DASHEN BANK SC

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STATEMENT OF DECLARATION

I, hereby, declare that this research work entitled "The Impact of Data governance maturity on business performance of Dashen Bank SC." is submitted in partial fulfillment of the requirement for Degree of Master of Business Administration-Management with the guidance and support of the research advisor. This study is my original work, and it has not been presented for any degree or diploma program in this or any other university/institution, and all source of materials used have been duly acknowledged.

Declared by: Gelila Behailu Takele

Signature _____Gelila beh_____

STATEMENT OF CERTIFICATION

This is to certify that the research prepared by Gelila Behailu, entitled "The Impact of Data governance maturity on business performance of Dashen Bank SC." and submitted in partial fulfillment for the Degree of Master of Business Administration complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

Approved by the Examining Committee

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List of Abbreviations and Acronyms

DGM- Data governance maturity

DGP- Data governance practice

DG-Data governance

IBM- International Business Machines

KPMG- Klyn Veld Peat Marwick Goerdeler

PWC- PricewaterhouseCoopers

OP- Organizational performance

SPSS- Statistical Package for the Social Sciences

VIF -Variance Inflation Factors

VIRO- Valuable, imitable, rare, and organized

Abstract

The study investigates the impact of data governance maturity on Dashen bank business Performance. The study tried to cover data governance maturity and its significant impact on Dashen Bank's business performance by identifying variables that express the maturity of the data governance. An explanatory research design was used by employing quantitative approach. Explanatory research design was used to establish the causal effect relationship between data governance and business performance. Primary data was used in the study with questionnaire as a collection tool, data governance committee and data governance division employees, East district branches, senior management, finance, and business process department employees was categorized in stratified sampling to determine the sample size. Of the sample size of 184 employees, 157 responded effectively to the study. Analytical methods (descriptive and inferential statistics) were used to examine the relationships between the variables, while the collected data further analyzed using SPSS version 23.0, employing various statistical tests like frequency distribution, correlation and regression. The study findings suggest that data governance maturity is a significant predictor of business performance at Dashen Bank. The various aspects of data governance—ownership, quality, modeling, integration, and compliance are all positively correlated with the performance of the organization, highlighting the importance of investing in these areas for improved business outcomes. Based on the analysis strong evidence was provided to conclude that data governance maturity is a critical factor in enhancing organizational performance at Dashen Bank. As a result, the study gives some recommendations to further enhance the positive impact of data governance maturity on organizational performance as indicated by the study's findings.

Key terms: - *Date governance maturity (DGM), business Performance, Data ownership and stewardship, Data integration, Data modeling.*

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Data governance has emerged as a critical discipline within organizations, influencing their ability to manage, secure, and derive value from data assets. The evolution of data governance can be traced back to the increasing recognition of data as a strategic asset that requires structured management and oversight. Historically, businesses have grappled with challenges related to data quality, consistency, and compliance, leading to inefficiencies and missed opportunities.

In the early 2000s, with the proliferation of digital data and regulatory requirements such as Sarbanes-Oxley, there was a growing realization of the need for formalized frameworks to govern data. According to Wang and Strong (1996), data governance encompasses the people, processes, and technology required to ensure data assets are managed effectively across an organization. This early conceptualization laid the foundation for subsequent developments in the field.

Decision-making processes are increasingly crucial for organizations to maintain a competitive edge in the market. Each decision made within a company must enhance business value and meet stakeholder demands, facilitated by high-quality data (Newman & Logan, 2006). Over the past few decades, data governance has evolved from a nascent concept into a fundamental corporate practice (Otto, 2011). Despite its recognized importance, many organizations still struggle with the effectiveness of their data governance practices (Rand Secure Data, 2013), facing challenges such as unclear policies, inadequate alignment with business strategy, poorly designed frameworks, and limited awareness of best practices (Kim et al., 2014).

Globally, organizations seek to maximize their data's potential as a strategic asset. Effective data governance ensures data quality, security, and accessibility (Gartner, 2020). The pivotal role of data within organizations gained further recognition with the introduction of regulations like the General Data Protection Regulation (GDPR) in the European Union, mandating stringent data protection and privacy measures (Abraham, Schneider, & Vim Brocke, 2019).

There is a well-documented correlation between mature data governance (DGM) and enhanced business performance worldwide. Numerous studies and reports substantiate this positive relationship (Abraham, R., Schneider, J., & Vim Brocke, J., 2019). Companies with mature data governance practices demonstrate improved operations, higher customer satisfaction, enhanced regulatory compliance, superior risk management, and a strengthened competitive advantage (Gartner, 2020).

Khatri & Brown (2014) assert that industries heavily dependent on data, such as finance and healthcare, illustrate the link between mature data governance practices and improved performance. A study by the African Development Bank (2021) similarly reveals that banks with mature data governance practices experience significant increases in operational efficiency, customer satisfaction, and regulatory compliance.

Recent studies by prominent consulting firms and international organizations highlight the profound impact of robust data governance frameworks on business performance across diverse regions and industries. According to KPMG (2019), organizations in South Africa saw notable improvements in operational efficiency and customer satisfaction due to mature data governance practices. Specifically, companies with mature DG reported a 20% increase in operational efficiency and a 15% improvement in customer satisfaction metrics. These findings underscore the tangible benefits of effective DG in driving operational excellence and enhancing customer-centric strategies.

Similarly, PWC (2020) conducted a study focusing on Nigerian banks, revealing that institutions with advanced data governance practices demonstrated superior risk management and compliance capabilities, contributing significantly to overall business performance and resilience in a highly regulated industry. The study by the International Finance Corporation (IFC) in 2020 within East Africa further reinforces these positive outcomes, indicating that implementing a robust data governance framework led to a 10% reduction in operational costs and markedly improved data-driven decision-making processes.

These collective studies underscore the transformative potential of data governance beyond compliance or operational efficiency. They highlight its role in fostering strategic advantage, improving customer outcomes, and optimizing resource allocation through informed decisionmaking. As businesses increasingly recognize data as a critical asset, understanding the nuanced impacts of data governance on business performance remains a vital area of scholarly inquiry and practical application.

In recent years, Ethiopia's financial sector has undergone rapid transformation with privatization, digitalization, and modern banking practices. As part of this evolution, data governance practices have become crucial for sustainability, supporting banks in improved risk management, operational efficiency, and customer service (National Bank of Ethiopia, 2022).

A study by Getahun and Alemayehu (2020) explored the impact of data governance practices on business performance, finding that banks with mature data governance exhibit higher data quality and decision-making capabilities, translating into enhanced business performance. Similarly, the study by Kebede Demeke and Alemu Tekle (2019) focused on the adoption of data governance, noting a growing awareness but still early-stage implementation.

Research conducted by the Ethiopian Economic Association (2020) highlighted the challenges and benefits of data governance, emphasizing the potential competitive advantage despite its early development stages. This conclusion underscores that effective data governance practices at Dashen Bank can improve overall business performance and strengthen competitive positioning in the market.

This paper investigates the impact of Data Governance Maturity by identifying factors affecting maturity and quantifying each factor's influence on Dashen Bank SC's overall business performance.

Background of the company

Dashen Bank is one of the first-generation Ethiopian banks that was founded in September 1995 by eleven visionary shareholders and expert bankers. With an initial capital of Birr 14.9 million, the bank secured its license from the National Bank of Ethiopia and officially started operations on January 1, 1996, opening eleven fully-fledged branches. The name “Dashen” is derived from the highest peak in Ethiopia, Mount Dashen, symbolizing the bank’s aspiration to be the “Best in class Bank in Africa.” (“Dashen Bank S.C, 2024”)

Since the bank is one of Ethiopian first-generation private bank, it becomes pioneer in exploring data governance concept. According to the organizational structure the bank is classified into 12 functional areas with different departments and divisions. Under Chief digital and information officer there are seven departments which includes Analytics and Data base management department this department consists of a data governance division this division is managed by senior data analysis engineer and this division is consists of data quality assurance engineer, senior data science officer, Data analytics engineer and Senior data science officer. According to Dashen bank structure it has a centralized data governance framework where all

the data related decisions are aggregated into one single department. The bank also formed a data governance committee that consists of different department representatives. The bank developed various guideline that is used in data governance those guidelines and policies includes MIS Report Governance guideline, Data management policy, Data classification, Personal data protection, MIS governance guide and Data management policy.

1.2 Statement of the problem

In recent years data governance has become an essential tool to manage data for an organization. For data governance to be labeled as mature the practices should ensure high data quality, security, accessibility and compliance with regulation, and companies with this attribute typically shows an improvement in operational efficiency, risk management and customer satisfaction (Gartner, 2020). A baseline study on national data governance, conducted from August to October 2022, highlighted the need for a structured approach to managing data across different sectors (United Nations Department of Economic and Social Affairs, 2024).

Various studies shows that an organization with robust DG practices experience an improvement in efficiency, customer satisfaction, risk management which contribute an improvement on overall business performance (African Development Bank, 2021). Study conducted in Nigerian banks conclude that banks with mature DGP tends to have an improved risk Management and regulatory compliance (PWC, 2020).

Despite the theoretical and empirical support data governance maturity regarding its impact on overall performance, companies still struggle to quantify its impact. The financial industry faces challenges due to the growth of data driven by business competition. The need for growth makes companies conscious of cost-effective management of data storing, and this creates a problem in efficiency of the data management, integration, and usage (Smith & Mcken, 2018). Specifically in Ethiopian financial industry scenario the drastic transformation within the industry increased the demand of accurate and timely data to stay in competition, Thus, the NBE is promoting data governance to aid to the industry growth (NBE, 2022).

In the context of Dashen Bank's expansion and business upgrades over the past decade, there has been a notable increase in the volume and complexity of data generated and managed. This growth stems from the bank's broader operations and enhanced service offerings aimed at improving customer experience and retention. The need for data accuracy and timeliness has

correspondingly heightened to support informed decision-making, operational efficiency, and compliance with regulatory standards set by the National Bank of Ethiopia (NBE). These regulatory requirements underscore the critical role of robust data governance practices, overseen by Dashen Bank's legal department, in ensuring data integrity, accessibility, and security to mitigate risks and maintain regulatory compliance effectively (NBE, 2022).

Regardless of the effort for the implementation and effective usage of data governance practices, there is lack of systematic study on the company's business performance impact. For Dashen bank, it remains unclear how its business performance is affected by various aspects of data governance such as the ownership of the data, the quality aspect, integration, and the modeling aspect. This gap hinders the banks' ability from leveraging its data as a strategic asset.

The gap in recognizing and understanding the data governance maturity impact on business performance poses a huge risk for the bank. If there is a lack of understanding, the bank will fail to optimize its operational efficiency, risk management and compliance. The lack of understanding DGM impact has an ability to affect the journey of building a strong customer base and enhance its shareholder value (Abraham, Schneider, & Vim Brocke, 2019).

Addressing this gap is essential for several reasons. Starting from achieving operational efficiency, risk management, regulatory compliance to increasing the shareholder value. to assist the journey of understanding the current landscape of Ethiopian data governance practices in terms of institutional level through its findings. Therefore, there is a need for research to investigate the DGM on the banks' business performance.

1.3 Research Questions

To investigate the impact of DGM on business performance the study answered the following questions:

1- Wha is the impact of Data stewardship/Ownership on the bank's performance?
2- What is the impact of Data integration on the banks overall business performance?
3- What is the effect of Data quality on Dashen bank business performance?
4- What is the effect of Data Modeling on the bank performance?
5- What is the impact of compliance with regulation on the bank's performance?

1.4 Objectives of the study

1.4.1 General Research Objective

The study's general objective is to investigate the impact of Data governance maturity on Dashen bank business performance.

1.4.2 Specific objective

1- To examine the impact of Data stewardship/Ownership on the bank's performance.
2- Investigate the impact of Data integration on the banks' overall business performance.
3- Examine the effect of Data quality on Dashen bank business performance?
4- Examine the effect of Data Modeling on the bank's performance.
5- Investigate the impact of compliance with regulation on the bank's performance.

1.5 Significance of the study

The study aims to fill a gap on lack of understanding in empirical evidence through an institution level impact assessment and translating the findings into tangible recommendations for the bank to improve the bank data governance practices. The study focuses on the different dimensions while assessing the DGM, which provides a practicable insight for Dashen bank. The study quantifies the impact on the business performance, the research also identified improvement areas based on the correlation analysis and gives a clear picture on the impact of DGM level on financial performance of the bank. Also, this research will aid the researcher in partial fulfillment for MBA-management.

1.6 Delimitation of the study

Though there are several Performance metrics, this research focuses only on business performance which is measured by financial metrics, customer satisfaction, learning and growth and internal business processes.

The study also delimits itself to Dashen Bank SC that exist in Addis Ababa excluding other countryside offices. The respondents to the survey are limited to full-time professional employees of Dashen bank and specifically data governance division employees and selected management personnels. The researcher finds it important to target selective Dashen bank employees as a population by excluding other staff that are not directly related with DG. Regarding methodology, the study limits itself to employing explanatory study design by employing quantitative approach.

1.7 Limitations of the Study

The main limitation of this study is the Business Performance metrics – there are available different metrics to assess an organization performance; however, the metrics that are used to represent business performance in the study is limited to Financial metrics, customer satisfaction, learning and growth and internal business process, Since corporates have different performance measurement metrics in different angles the performance metrics used in this study may not fully express the business performance.

The other limitation of the study is the generalization, this study sample is limited on Dashen Bank SC therefore generalization of the finding to other banks might not be appropriate. Business performance can be influenced by several factors from both internal and external environment and these factors are not included in this study.

1.9 Ethical consideration

Confidentiality and privacy are some of the most important cornerstones of field research activities to get relevant and appropriate data. The researcher assured the research paper's purpose and confidentiality of any information gathered through questionnaire on the paper's introductory part.

Before the study began, informed permission from every participant was sought. The study's purpose was explained to respondents, who were told they can withdraw from the study at any moment. Participants have been enlightened about the data collection process. By excluding the writing of the subjects' names and giving clear instructions, the privacy of the subjects was secured and guaranteed. Moreover, the data collected from the participants during the process are exclusively utilized for the research objectives and their privacy is protected.

Further, the researcher has informed the participants about the purpose of the study and asked for their consent before giving them the questionnaire. Ethical consideration of respect for others is significant throughout the research process (Cavan, 1977). The data analysis followed the standards of scientific quality, honesty, accuracy, and sensitivity. The researcher has also considered factors such as the age of the sample group, the sensitivity of the topic, and the potential controversies (Cohen et al., 2007).

1.8 Organization of the study

This research is organized as follows:

Chapter one consists of the study's introduction, which contains background of the study and organization, statement of the problem and research questions, the objectives, significance, delimitation, limitations of the study and Ethical consideration. Chapter two presents the review

of literature and review of existing research, by highlighting the concept, theories, empirical literatures of DGM developed conceptual framework. Chapter three contains the research methodology, instruments used to collect data, the sampling and analysis technique used in the study. Chapter four of the study represents the data presentations, analysis, and discussions whereas conclusions with recommendation for future studies are encompassed on chapter five of the study.

CHAPTER TWO

LITRETURE REVIEW

This literature review is built upon theoretical review, review of empirical research related with DGM and Business performance and conceptual framework that communicate the study variables through visual representation.

2.1 Conceptual Review

The conceptual review of the study consists of various definitions and concepts raised by several scholars about the research variables. Starting from Data, Data governance, Data governance maturity and the practices up to concepts regarding organizational performance metrics was raised and discussed in this section.

2.1.1 What is Data?

Data is a building element for information. Turban et al, (2009) highlight that data is a building block of information, it requires processing and analyzing to be meaningful information. To extract information that helps to make an informed decision data should undergo a lot of process. Data plays important role in an organization, it serves as raw input necessary to function, it helps managers to make informed decision, identify trends and helps to facilitate problem solving process, also data helps an organization to track its KPI and evaluate its progress, overview its status by comparing with the given goal and make adjustment to meet the end result.

Data and information are two different concepts. An organization with mature DG ensures the process of data collection, storage and management are accurate and has effective analysis to lead into reliable information that supports an informed decision and planning. Turban et al definition emphasizes the importance of proper data management tools. To see data as competitive advantage organizations need to build a robust system and governance framework to ensure the asset quality, security, reliability, and accessibility.

In financial institutions, data plays a critical role in decision-making, risk management, customer engagement, and overall operational efficiency. Data used particularly on financial institutes includes but no restricted to transactional data, market data, Regulatory data, Customer data, Operational data and based on observation these data's can be acquired from various sources internal systems like Core banking systems, risk management systems, trading platforms, and loan origination systems, External sources such as credit bureaus, social media platforms, market data vendors, and Data aggregators, Customer interactions from online banking, customer service interactions, Applications.

2.1.2 Data Governance: Definition

DAMA International (2017) defines DG as "the exercise of authority and control over the management of information assets," highlighting its role in overseeing data as a strategic asset. This definition emphasizes the establishment of policies, procedures, and guidelines to ensure data quality and compliance. ISO/IEC 38500 (2019) broadens this scope, framing DG as "a framework encompassing policies, standards, and processes" to manage data effectively across organizational functions.

Talluri and Van Der Heyden echo the importance of a structured framework in DG, emphasizing policies, standards, and processes to maintain data accuracy and reliability. FSISAC (2011) provides a specific industry context, focusing on the coordination of authority to align data management with business objectives and regulatory requirements, thereby mitigating risks associated with data misuse.

Infocom Institute (2023) shifts focus to maximizing business value through DG, stressing the optimization of data usage for informed decision-making while ensuring compliance and security. Thomas (2006) views DG as a system to assign decision rights and responsibilities, essential for maintaining accountability and control over data access and usage.

Ikhsan Mirza Harwant (2023) underscores DG's role as a decision system and accountability framework, crucial for processing information effectively within organizational contexts. These definitions collectively highlight DG's multifaceted nature in ensuring data quality, security, compliance, and strategic value.

DG emerges as a foundational framework for organizations seeking to harness the full potential of their data assets. While definitions vary in emphasis and scope, they converge on the importance of establishing structured approaches to data management and governance. Challenges such as regulatory compliance, technological advancements, and organizational resistance underscore the complexity of implementing effective DG frameworks.

2.1.3 Data Governance Maturity

Data governance institute (2023) defines data governance maturity (DGM) as a stage where an organization performs its DG practice. DGM consists of different elements such as data consistency, reliability, and accuracy that describes its quality management, protection of data by segregation and labeling sensitivity to ensure its security. Policies, Procedures, framework, and organization culture are also elements of DGM. The definition emphasizes that DGM

reflects the company's capacity to govern the data asset and align it with their business objective.

Higher DGM within an organization correlates with improved business outcomes, the outcomes could be in different areas like decision making, performance improvement, operational efficiency. While progressing through levels of DGM an organization improve its business performance. This correlation was described by Olshin (2017). He explained in detail about the correlation with each business outcome. He also emphasizes the importance of progressing from one level to another. The progress made by an organization through the stages should be met with specific measurement areas, an organization made a progress if they lay out clear policies and processes, implementing controls, create a data driven decision making culture and allocate adequate resources into implementation. Usually, these models specify several stages of maturity, from basic to advanced or optimized. For an organization to advance to the next level, each level has requirements and characteristics that it must contain.

2.1.4 Levels of DGM

In the corporate world days business is becoming broader and more versatile from the typical old school business environment. Companies are widening their reach through globalization, creating a portfolio of business under their wings exploring different areas and markets, within all this a business stands as business through governance. Proper corporate governance makes a company function properly, and as part of corporate governance data governance oversee one of the institute assets. An asset that is administered properly tends to bring a competitive advantage for the organization. If data is governed properly, we can say the organization has a mature DG, which assures the business health through informed decision making, better financial and operational performance and improved risk management.

In a published article by data governance institute in 2023 it was stated that an organization could use their data asset effectively for informed decision and competitive advantage only when they are able to assess their maturity level in their DG practice. Several Maturity models are available with their own unique structure and character to evaluate an organizations DG capability, and each as its own identified level but the most common used models are Data governance maturity model (DGMM) that is developed by Information System Audit and Control Association (ISACA) which describes other model levels. DGMM model consists of five levels of maturity with their own specific character.

- **Initial Level-** Informal, not structured (ISACA, 2023)

- **Developing Level-** Recognition is made and basic policies, processes are in development stage where implementation is still not structured and formalized (ISACA, 2023).
- **Defined Level-** has a developed policies and structure but lacks integration across the organization departments and is not addressed as culture (ISACA, 2023).
- **Managed Level-** has consistency on the application with a structured and welldeveloped process. An organization that reaches this stage has established a wellcontrolled mechanism to ensure data quality, security, and compliance (ISACA, 2023).
- **Optimized Level-** Full integration is made throughout the organization, culture of DG is established, DG practices has been evolving throughout the changing environment of the business (ISACA, 2023).

2.1.5 Data governance practices

While discussing data governance, it is critical to mention the practices within data governance that ensure the data of the company is valuable.

DGP is a set of processes, procedures, standards, and policies that ensure an organization has an effective and efficient usage of information and leverage data as an asset for competitive advantage (Khatri & Brown,2010). There are a wide range of activities with the aim of data management and protection. And one of the key components of the practices includes data quality, data ownership/stewardship, data modeling, data integration and compliance, these elements are crucial for the organization DG (Otto, 2011).

Data ownership/stewardship

Data ownership and stewardship are fundamental components of data governance frameworks, each playing crucial roles in the management and utilization of organizational data assets. Gartner (2019) defines data ownership as the authority granted to individuals or entities to modify, share, or dispose of data. It underscores the importance of clearly defined ownership structures within organizations to mitigate governance challenges. IBM (2020) corroborates this view, emphasizing that well-defined data ownership reduces ambiguity and enhances accountability in data management practices.

In contrast, data stewardship focuses on the operational aspects of data management, ensuring data accessibility, reliability, and security (Viler, 2019). Effective data stewardship facilitates improved data-oriented decision-making processes, thereby enhancing overall business performance (Deloitte, 2018).

While the practical roles of data owners and stewards may vary across organizations, their overarching goals remain consistent: establishing and executing governance frameworks and operational tasks, respectively (Satori, 2021). This alignment is crucial for ensuring compliance with industry-specific regulations, as noted by Manyika et al. (2017), who stress the importance of regulatory alignment to manage compliance-related risks effectively. Thimble by (2017) highlights the critical role of collaboration and communication between data stewards and other organizational teams. Effective communication ensures the efficiency of data governance practices, promoting alignment with strategic objectives and operational needs.

It is evident that data ownership and stewardship are interdependent components of a robust data governance framework. While ownership delineates accountability and authority over data assets, stewardship ensures their operational integrity and strategic alignment. Successful implementation of data governance hinges on clear ownership structures, effective stewardship practices, and alignment with regulatory requirements.

Effective data stewardship and clear ownership play crucial roles in enhancing business performance within financial institutions. Research by Smith (2023) highlights that robust data stewardship practices, which include the responsible management and oversight of data assets throughout their lifecycle, contribute significantly to operational efficiencies and strategic decision-making capabilities. By ensuring data accuracy, consistency, and accessibility, organizations can improve customer service, regulatory compliance, and overall business agility. Furthermore, the clarity of data ownership fosters accountability and facilitates more informed data-driven initiatives, ultimately leading to better resource allocation and risk management strategies (Smith, 2023). This underscores the importance of structured data governance frameworks that prioritize stewardship and ownership in optimizing business outcomes.

Data integration

Data integration is a critical practice in the modern business world, aimed at enhancing efficiency by consolidating data from diverse sources into a unified format for effective utilization. According to Gartner (2014), data integration involves the amalgamation of data from multiple sources into a cohesive format suitable for decision-making. This process comprises several key steps to ensure data consistency and usability. Qlik (2022) emphasizes that data integration encompasses a set of processes designed to maintain data consistency across systems, facilitating accurate and reliable insights.

IBM (2023) expands on the significance of data integration in addressing challenges related to data inconsistency, which often hinder analytical and decision-making processes. Reinecke & Chatterjee (2019) outline the essential phases of data integration:

1. **Identification of Data Sources:** Initial step involves discovering and pinpointing data sources.
2. **Data Extraction:** Retrieval of data from identified sources.
3. **Data Mapping:** Alignment of data elements from different systems to ensure coherence.
4. **Data Validation and Quality Assurance:** Wang & Strong (2019) underscore the critical role of data quality in successful integration, as inaccurate data can lead to erroneous insights and flawed decisions.
5. **Data Transformation:** Conversion of data into a standardized format to enhance compatibility and usability.
6. **Data Loading:** Importing transformed data into other destinations for analysis and reporting purposes.

Data integration plays a pivotal role in enhancing business performance across various industries, including financial institutions. According to research by Jones et al. (2022), effective data integration strategies enable organizations to consolidate and harmonize data from disparate sources, thereby providing a unified view of operations and customer interactions. This integration facilitates more accurate and timely decision-making processes, improves operational efficiency, and enhances customer service capabilities. By leveraging integrated data, businesses can uncover actionable insights that support strategic initiatives such as personalized marketing campaigns and predictive analytics, leading to increased revenue and competitive advantage (Jones et al., 2022). Thus, data integration emerges as a critical factor in driving overall business success by optimizing processes and enabling agile responses to market demands.

Data Quality

Data quality is crucial for organizations as it determines the reliability and usefulness of data for decision-making and operational efficiency. According to Knight (2023), data quality reflects the degree of confidence in the usefulness of data. IBM (2023) further elaborates that data quality encompasses attributes such as accuracy, completeness, validity, consistency, uniqueness, and timeliness, tailored to meet consumer needs.

Wang & Strong (2019) introduce a framework categorizing data quality into relative and intrinsic attributes. Relative attributes pertain to consumer expectations, while intrinsic attributes relate to inherent data quality. This classification aids in understanding and meeting diverse consumer data needs.

Organizations utilize various approaches and tools to maintain and enhance data quality. Russom (2020) highlights the significance of audits and controls in these efforts, which are essential for identifying and rectifying data quality issues. Gartner (2023) emphasizes the detrimental effects of poor data quality, including substantial financial losses, compromised decision-making processes, missed opportunities, and unaddressed challenges. The adage "garbage in, garbage out" underscores the critical importance of data input quality for informed decision-making and operational success.

Maintaining high data quality has evolved from a recommended practice to a business necessity. Ensuring data quality through robust processes not only mitigates risks associated with flawed data but also enhances organizational agility and competitiveness. It is evident that data quality is foundational for organizational success. By adhering to stringent data quality standards and employing effective governance practices, organizations can harness data as a strategic asset to drive innovation, efficiency, and sustainable growth.

High-quality data is crucial for enhancing business performance across industries, particularly in the financial sector. Research by Brown (2021) emphasizes that data quality, defined by its accuracy, completeness, and consistency, significantly influences decision-making processes, operational efficiency, and customer satisfaction. Organizations that prioritize data quality initiatives experience improved compliance with regulatory requirements and more reliable forecasting capabilities, which ultimately lead to better resource allocation and risk management strategies (Brown, 2021). Furthermore, accurate and timely data enhances the effectiveness of strategic initiatives such as market segmentation and personalized customer experiences, contributing to sustainable competitive advantage and overall business success.

Data Modeling

Data modeling plays a crucial role in structuring information systems and facilitating efficient data management within organizations. Elmasri & Navathe (2020) define data modeling as the process of creating a visual representation of an information system, highlighting relationships between data entities. IBM (2023) emphasizes that data modeling begins with understanding

business requirements and translating them into a structured format to build databases that effectively support business operations.

Lenzi & Neri (2011) emphasize that data modeling focuses on the flow of data among entities and pathways. It serves as a blueprint aligning IT systems with business processes and strategies. Organizations with well-designed data models benefit from efficient data storage and retrieval capabilities, enabling informed decision-making in a timely manner.

According to Kimball & Ross (2011), data modeling bridges the gap between business requirements and technical implementation within information systems. A robust data modeling framework ensures that IT infrastructure supports organizational objectives by accurately capturing and managing essential data.

Data modeling emerges as a critical component in modern organizational architecture. It facilitates efficient data management and enhances the alignment of IT systems with business goals. By visualizing data relationships and optimizing data flow, organizations can streamline operations and improve decision-making processes. As businesses increasingly rely on datadriven insights, investing in robust data modeling practices is essential for maintaining competitive advantage and achieving strategic objectives.

Data modeling plays a critical role in enhancing business performance by facilitating predictive analysis and strategic decision-making. Research by Miller and Lee (2020) underscores that advanced data modeling techniques enable organizations to extract actionable insights from complex datasets, leading to improved operational efficiencies and enhanced risk management practices. By creating mathematical representations of business processes and customer behaviors, data modeling supports accurate forecasting, scenario planning, and resource optimization strategies. This capability not only enhances the organization's ability to adapt to market dynamics but also strengthens its competitive position by enabling proactive responses to emerging trends and customer demands (Miller & Lee, 2020). Therefore, effective data modeling emerges as a key driver of sustainable business performance across various industries.

Compliance with Regulation

In the contemporary business environment, adherence to legal and regulatory requirements is crucial for organizations to ensure operational continuity and build trust with stakeholders. Companies must navigate various laws and regulations that govern data handling practices. Compliance entails more than mere rule-following; it requires fostering a responsible culture of transparency and trust within the organization (Gartner, 2023). IBM (2023) underscores that

compliance with regulations ensures data accuracy, transparency, and security, essential for maintaining operational integrity.

According to McAfee, Davenport & Barton (2016), organizations with mature data governance practices possess the capability to stay updated on pertinent laws and regulations. Understanding the legal landscape helps mitigate the risk of costly penalties associated with non-compliance. Heo Data (2023) defines data compliance as the implementation of controls to safeguard data privacy, ensure availability and integrity, and regulate usage. These controls are mandated by external governing bodies to safeguard data fairness and security across diverse data sources.

Effective data governance that incorporates compliance with regulations fosters trust among stakeholders, including customers and business partners. Wang & Strong (2019) highlight that adherence to regulatory requirements demonstrates an organization's commitment to responsible data practices, enhancing its reputation and credibility.

It is evident that integrating robust data compliance measures into governance frameworks is essential for organizational success. Compliance not only mitigates legal risks but also enhances operational transparency and stakeholder trust. Organizations should prioritize continuous monitoring and adaptation to evolving regulatory landscapes to maintain compliance and uphold ethical data handling practices.

Compliance with regulatory requirements is integral to business performance across industries, particularly in highly regulated sectors such as finance. Research by Chen (2019) emphasizes that adherence to regulations not only mitigates legal risks and penalties but also enhances operational stability and investor confidence. Effective compliance frameworks ensure that organizations operate ethically and responsibly, thereby fostering trust with stakeholders and protecting brand reputation (Chen, 2019). Moreover, compliant practices contribute to streamlined operations, improved risk management strategies, and sustainable growth opportunities. By prioritizing compliance, businesses can capitalize on competitive advantages stemming from enhanced transparency, governance, and operational resilience, ultimately driving long-term financial performance and market competitiveness.

2.1.6 Organizational performance

Organization performance refers to the achievement of business goals and objectives (Cameron, 1986). Performance metrics consist of different activities that influence the value of the stakeholders (Gomes et al., 2021).

Key component of performance breaks down to the efficiency, effectiveness and adaptability of the activities held by a company to achieve the business goal and objective. Efficiency is often represented by how an organization uses its resources to produce maximum output (Boyne & Lewis, 2002). Different studies also demonstrated the positive correlation between operational and financial performance which emphasize the optimization of resources (Kaplan,1983).

Effectiveness is achieving the goal and objective (Cameron,1986). Studies found a strong link between customer satisfaction and organizational effectiveness and suggested that customer satisfaction is critical for successful business performance (Gupta & Singhal et al.,2006). Adaptability is about the ability to resist and adapt to changes within the business environment (Gibson & Greenwood, 2000).

Organizational performance measurement, especially corporate based institution is often complex, some studies focus on financial measures (Flam Holtz, 2009). Financial performance metrics typically indicate the performance of an organization regarding revenue generation, cost management and shareholder value creation. The most common metrics in financial performance is Net income which shows the total earnings of the bank after all expenses paid, tax deducted. It shows profitability and how healthy the bank is financially. Return on equity shows the bank profitability in terms of shareholder equity. If the bank has higher ROE, it means the equity that was dispersed by the shareholders has been used efficiently to generate profit, it is critical attracting investors. Return on asset also measures the asset utilization on generating profit. These metrics are just a few tools to measure financial performance. Banks use these metrics in the annual and quarterly reports to display their position and find a way for an improvement (Corporate Finance Institute, 2023).

Other studies overview the non-financial performance indicators like customer satisfaction, employee culture, innovation, learning and growth, social responsibilities, and other metrics (Neely & Adams,2012). This multifaced approach helps to have a more over rounded understanding of the organization's performance. A study by Bryman & Burrell et al., (2008) states the positive relation between employee engagement and business performance, they suggest that motivation in workplace contributes is fair share of improvement to the organization performance.

Furthermore, studies highlight the various aspects of activities that has potential to affect the organization performance, such as organization structure, business alignment, decision making hierarchy, communication channels are mentioned by Wright & Crapanzano (2000).

External factors affect an organization, such as competition intensity within the industry, technology change, regulation changes (Emery &Trist, 2005). It is essential to consider these variables when assessing an organization's performance to gain a comprehensive view of its effectiveness and efficiency.

Organizations often use balanced score cards that combine both financial and non-financial measures to evaluate their performance. This approach allows to capture the overall performance of the business and pinpoint the strengths and weaknesses of the company. Performance management system is mostly employed by the companies, which aligns individual performance with the organization objective (Armstrong & Baron, 2005).

2.2 Theoretical Framework

On this section relevant theoretical foundation of this study has been reviewed. This study is founded by two theories: Agency Theory, and Organizational Information Processing Theory. The RBV theory conceptualizes data as an asset within an organization, Agency Theory conceptualizes governance and Organizational Information Processing conceptualizes information processing.

2.2.1 Agency Theory

Jensen and Meckling (1976) conceptualize a theory called “Agency theory" which focuses on the relationship between the agent and owners in business context. Owners can be categorized as sole or shareholders while agents are managers hired to undertake the business process. The theory identifies the potential conflict between the two parties, this conflict arises from different goals and understanding. Principal and agent relationships are created when the principal or owner hires the agent to run the business on their behalf. But this arrangement has a lot of internal and external influence that creates a risk of conflict, the conflict arises from interest and priority difference.

Data is valuable resource for an organization, it is entrusted to the agent on behalf of the owner, and DG plays a significant role in the management of data as a resource, a well-developed DG outlines a clear and defined role and responsibility and segregation of duties to reduce data abuse and improve the financial performance. Mature DG establishes well-structured policies, procedures and processes and promotes accountability by creating transparent business processes so companies can use DG to have core competency and boost their business performance. (Atlan, 2023)

If a company has inadequate DG practices, it is exposed to irregularity of information since agent has more information than the owner, it may be misused which leads to data breaches

and compliance risks. Also, the lack of categorizing data tends to leak sensitive information and lead to security risk, thus a company with inadequate DG tends to have unclear duties and responsibilities (Jensen and Meckling, 1976).

Strong DG practice aligned with agency theory helps the company to have a transparent accountable environment. Informed decision making takes place because DG assures the reliability and quality of the data, this also increases compliance and decrease the risk of data breach due to unclear segregation of roles and responsibilities, which leads to creating a trust between the two parties and have seamless business process with improved financial and nonfinancial performance.

Although numerous studies have investigated the relation between data governance maturity and performance, most of them have not focused on the organizational level. Even though these studies demonstrate a positive correlation between organizational performance and data governance maturity, they mostly focus on the relationship, with little focus paid to the influence on an organization's current state. The agency theory's basic assumptions imply that an organization's performance is impacted by data governance maturity through its classification of roles and responsibilities. Therefore, enhancing DGM should result in improved performance for the entity.

2.2.2 Organizational Information Processing Theory

An organization must process information to function and have business continuity (Galbraith, 1973). This theory identifies three concepts within information processing: Its need, capability, and the fit between the information processing need and capability to find an optimal performance. For an organization to operate, cope with uncertainties within the industry and make improved decisions it needs quality and updated data (Saunders & Premkumar, 2005).

Within this theory a sub idea called “Media richness theory” has been discussed by Goodhue & Wydo, et al., (1992) which argues that organizations’ process information to reduce both uncertainty and equivocality. “Uncertainty can be reduced by a sufficient amount of information, while equivocality can be reduced by sufficiently rich information” (Goodhue, Wydo, Kirsch, & Ha, 1992).

Effectiveness of information processing has the ability to affect organizational performance through quality and up-to-dated data input to make a decision effectively. Organizations with effective information processing are better in responding to any changes and uncertain events (Eisenhardt & Martine, 2000). Effective information processing also can minimize waste and

optimize resource use, which contributes to operational efficiency (Galbraith, 1973). Customer satisfaction, adaptability, innovation, are also some organizational performance indicators improved by the information processing's effectiveness.

Organizational information processing Theory, states about how effective information processing is crucial for an organization to survive in the competitive market, an organization with mature data governance practice tends to make an informed decision, be proactive to environmental change and minimize uncertainty with sufficient and up to dated data (Saunders & Premkumar, 2005).

According to Eisenhardt & Martine (2000) organizations with effective information processing are proactive to changes, the responsiveness nature was underpinned by the maturity of the data governance practice. It could be concluded that an organization with an elevated level of DGM can optimize their information processing capability, so the company makes an informed decision and maintains its competitiveness in the market. While assorted studies highlight the positive relation among DGM and organization performance, incorporating the information processing theory sheds a deeper understanding on the impact, by focusing on the quality and quantity aspect of the data.

2.3 Empirical Review

For the last three decades there has been an ongoing study regarding the framework, model and practices that have an ability to provide an integrated, secured, and high-quality set of data (Smith &McKeen 2018).

Data governance has also become a big part of business strategy in the modern business world. Organizations are becoming increasingly sensitive about their governance tools, and hence they gave recognition to effective data governance impact on overall business process and performance.

Data governance consists of guidelines, process, policies, and standards, which are responsible for ensuring effective governance of data as an asset, Data governance components include the security, quality, segregation, and compliance of data, this component as whole creates a framework of data governance within a company (Otto, 2011).

2.3.1 Data Ownership/Stewardship and Organizational Performance

Fadler and Legner (2022) highlights the importance of clarifying accountability. The study emphasizes the importance of data ownership to leverage big data and analytics capability of

an organization which improves business performance. The researchers argue that data ownership concept defines the accountability related to data. Similarly, study by Shabbir & Gardezi (2020) explores the relationship between big data analytics practices and business performance; by taking knowledge management as mediating role, their finding suggests the positive and significant relationship between business performance and big data analysis practices in small and medium enterprises.

In Africa, a study by Borromini & Saturday (2021) discusses the future of data governance practices including trust, stewardship, collaboration and how to leverage this into creating a value. Their study identified different challenges that hinder the effectiveness of data management and impact organization performance.

In Ethiopian context, Teferi & Mulugeta (2021) conducted a study at Addis Ababa University and tries to examine the impact of data stewardship on higher education institute performance, they found the effectiveness of stewardship practice significantly improves quality and reliability of data which improves the performance of the institutions.

Study that was conducted by Gebremariam & Singh (2019) on role of data ownership in improving business performance in the Ethiopian banking industry. Their study highlights that there would be better data protection, accuracy, reliability if there is clear and well-structured data ownership practice, which leads to a business performance improvement.

The empirical studies strongly agree to the essentiality of data ownership and stewardship for an organization's performance. The ability to govern data and leverage effectively is linked with improved overall business performance. But the challenge associated with data governance practice especially in Ethiopia context, underlines the necessity of strong data governance framework to effectively optimize data asset value. These studies collectively underscore the transformative power of data when managed with clear ownership and stewardship, contributing to the broader understanding of data's role in organizational success.

2.3.2 Data Integration and Organizational Performance

Studies such as Shabbir & Gardezi (2020) have pinpointed the positive impact big data analytics has on business performance. This view is also supported by Guo & XU (2021) research on Chinese manufacturing sector, they found a positive correlation between data transformation intensity and operational performance.

A study conducted in Kenya banking sector examined the impact of data integration on business performance. The study found a direct relation between effective data integration practice with improved overall performance. The researchers emphasize that banks with effective data

integration tend to have better customer service and make informed business decisions (Nyarko & Athenia, 2019).

In Nigeria, a study was conducted to investigate the role of data integration on business performance, it was evident that an organization with advanced data integration practice have a better product, better customer service and high Maret competition. The study concludes that for companies to leverage their innovative side, they need to have effective data integration practice (Adeyemi & Adebisi, 2020).

A study by Tesfaye & Kebede (2018) explores the effect data integration has on the manufacturing sector performance. The study concludes the effectiveness of data integration practices can improve the production, planning, inventory management and operational efficiency by minimizing waste.

Mekonnen and Teshome (2019) similarly examines the impact of data integration on performance in case of Ethiopian financial institutions, they pinpoint that, a bank with wellintegrated system provides better customer service through customization of products and has a better risk management.

These studies suggest that well integrated data improves business performance by enabling better decision making, risk management and enhancing innovation. But the benefit of integrated data practice is upon the organization capacity in utilization.

2.3.3 Data Quality and Organizational Performance

The impact of data quality on organization performance is one of the most exhaustively studied topics, almost all the research conducted on this topic highlights the data quality on improved decision-making process. Shabbir & Gardezi (2020) clarifies this relationship by showing the impact big data analytics has on organization performance with knowledge management as mediator. Wang et al. (2023) expands by examining the dimension and impact of data quality on business decision making process.

The relationship between data quality and organization performance was studied in Zambia, the study focuses on companies that works in the agricultural sector. The study revealed the increment of productivity due to high data quality which is characterized by accuracy, completeness, time oriented and significance. The researchers highlight that companies with reliable data have a better resource allocation and management (Banda & Sichone, 2019).

Similarly, the study conducted by Kawita & Omwenga (2020) in Kenya's health organizations point out that inadequate quality of data lead to operational errors, and misdiagnoses and treatment errors that results inefficient service for patients.

Study conducted on Ethiopian healthcare organizations by Mulugeta and Desta (2019) investigates the relationship between data quality and performance. The study discovered that healthcare institutions with better data quality tend to have efficient resource utilization, higher and risk management.

Moreover, study conducted on Ethiopian Airlines by Tariq Khan (2024) discloses that information technology and data quality have an impact on the airline's operational performance, suggesting that resource management is important aspect to inure operational efficiency.

2.3.4 Data Modeling and Organizational Performance

The impact of data Modeling on Organizational performance is studied by Kimball & Ross (2011), particularly focusing on business intelligence, the researchers found that well-designed data model enhance better data integration which supports the decision making and operational efficiency. Having high quality data models tends to improve business performance of an organization through effective data management. Study by Hellerstein, Stonebraker & Hamilton (2007) pinpoints the role data modeling plays in ensuring data base reliability, they also conclude that by having more efficient data model, storage and processing an organization can enhance its business performance by utilizing its IT resources.

In the African context, Nwankpa & Rouhani (2016) examines the relationship between data modeling and performance. Their study concludes that well-structured data models for customer and financial data can offer better customer service, efficient risk management and improved business performance.

Wolde and Tesfaye (2021) examines the relationship between data modeling and performance in Ethiopian higher educational institution, they conclude that institutes can have a better resource management, student service management and academic performance if the institute implemented a well-structured data model for the academic and administrative data assets.

These studies underline the transformative potential of data modeling in enhancing decisionmaking processes, operational efficiency, and strategic outcomes across different organizational and cultural contexts. The synthesis of these findings presents a compelling narrative of data modeling as a critical lever for organizational performance, with implications for policy and practice in both global and localized settings.

2.3.5 Compliance with Regulations and Organizational Performance

Gartner (2023) underline the importance of compliance with regulation for performance, compliance of legal and regulatory requirements not only avoids penalties it also builds trust between stakeholders, manage agency relationship positively, maintain reputation and build a trustworthy brand. IBM (2023) also emphasizes the importance of compliance to maintain data handling ethically, reduce risk of breach on data usage and enhances customer trust which leads to brand loyalty as competitive advantage.

Internal controls and regulation compliance impact on performance was studies by Mawanda (2008) in Uganda. The study's finding was that adherence to regulatory requirements can improve performance through maintaining financial stability, reducing fraud and enhancing transparency and accountability. In Zimbabwe, Maseko & Manani (2011) found on their study that compliance with regulation helps small and medium enterprises avoid penalties, leading to financial stability.

Belay & Shiferaw (2017) investigates the compliance with regulation role on manufacturing firms' performance. The study finds that firm that comply regulatory requirements not only they avoid penalty but also reduce wastes and enhance operational efficiency, the compliance also linked up with firm reputation and competitiveness in market which positively impact the performance.

In Ethiopia, studies such as Alemu's (2020) case study on Moha Soft Drinks Company reveal the critical role of internal controls in optimizing resource utilization and ensuring compliance with laws and regulations, which in turn supports organizational performance.

2.3.6 Data governance maturity and business performance

The positive correlation between DGM and financial performance is supported by different research, they all indicate how mature data governance practices can improve business value. Smith & Jones (2016) undertake a sematic study of one hundred fifty organizations across different industries. The study found that companies with strong DG practices have an over 12% increment on profitability compared to the weaker governance practices. Similarly, Lee et al. (2018) examines the impact on the banking industry, the study finds that banks with strong data governance shows a reduction in compliance issue fines and penalties, which displays an enhancement on the profitability, in addition to the profitability the customer satisfaction brings out a revenue growth. This finding has a similar alignment with Smith and Jones, effective DG can increase profitability through cost saving and improved customer relationship.

According to Johnson & Walker (2019) organizations that have a strong data governance have less exposure to data breach and violation of compliance, which has ability to damage the financial as well as reputation. This study emphasizes the risk minimization aspect of DG, which contributes to financial performance improvement.

Study by Brown & White (2020) outline the improvement in data analytics capacity is derived from effective data governance. Organizations with high data quality and security can leverage the deep insight they got from their customer behavior and trend, which allows them to follow a strategic decision making for revenue growth. The study highlights the study of Lee et al. and Smith & Jones by emphasizing the importance of mature data governance to not only reduce risk but also encourage informed decision-making strategies to improve profitability. Even if companies benefit so much from mature data governance, there are some noted challenges and limitations while implementing. For a company to have a mature DG practice there needs to have a significant attention in investment, building a culture, assessing progress, identifying gap (Carter and Green 2021).

Smith et al. (2018) is also one of the researchers that examines the link between improved financial performance and DGM. The longitudinal analysis was conducted on 50 organizations in USA, The finding of the study links DGM with financial performance positively.
Just like the other studies Nguyen et al. (2020) highlight the impact of DGM on overall business performance, which links with financial performance of the organization. 150 companies in Vietnam were analyzed to conclude on the finding.

These studies show a consistent pattern of mature data governance correlation with financial performance improvement. The organization with mature DG benefits from improvement on profitability and risk reduction up to strategic competency. However, the lack of constant assessment, less attention for the establishment of data driven culture, poor investment of resources are some of the challenges and limitations into achieving mature data governance within a company. This empirical review shows the reward of a company in terms of financial health, sustainability, and business value improvement.

2.4 Research Gap

On the basis of knowledge gap, impact measure and sector-specific evaluation, the study identifies a significant gap in understanding data governance maturity impact on the business performance of Dashen Bank. The gap prevents the bank from fully leveraging its data as a strategic asset, potentially hindering operational efficiency, risk management, compliance, and customer satisfaction. This research aims to investigate the effects of data governance maturity

on the business performance of Dashen Bank, focusing on DGP (Data ownership, quality, integration, modeling, and compliance) aspects. The findings, conclusion and recommendations of the study also address the gap in literature.

2.5 Conceptual Framework

A conceptual framework is a set of clear ideas or concepts organized in a manner that makes them easy to communicate with others (Schwartz, 2006). The conceptual framework of the study is based on theoretical literature and empirical literature on data governance maturity.

The conceptual model represented in Fig.1 shows the independent variable that represents the data maturity and its impact on the bank's business performance. The model has six constructs which were clearly listed and described in the literature review.

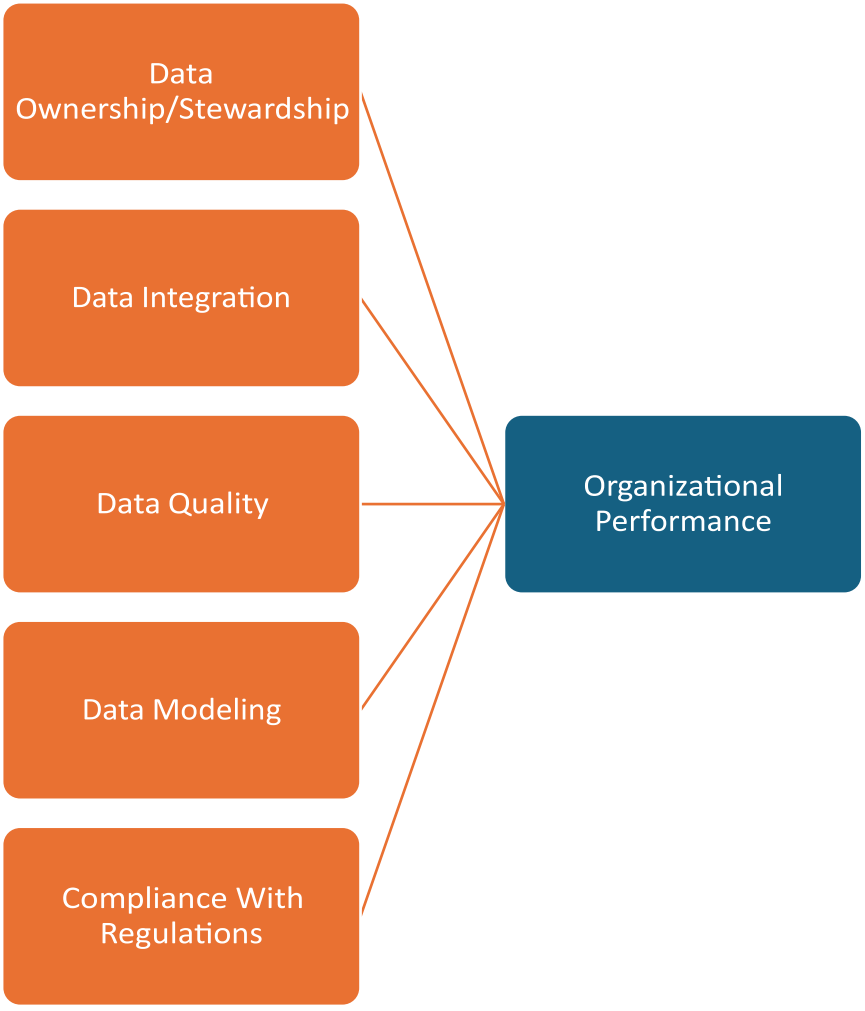


FIGURE 1: CONCEPTUAL FRAMEWORK

Source: Zimaya Ndamase, 2014

2.6 Development of Hypothesis

H1- Data ownership/stewardship has a positive impact on organizational performance of Dashen Bank.

H2- Data Quality has a positive impact on organizational performance of Dashen Bank.

H3- Data Modeling has a positive impact on organizational performance of Dashen Bank.

H4- Data Integration has a positive impact on the organizational performance of Dashen Bank. ***H5-*** Compliance with Regulations has a positive impact on the organizational performance of Dashen Bank.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Good research is characterized by its appropriate research methodology. This chapter discusses the methodology used to conduct this research. Thus, research design, sampling methods, data sources and collection method and data analysis methodology are represented, respectively.

3.2 Research design.

This research uses explanatory research design by employing quantitative approach. The explanatory type of research is more suitable for this research due to its examination and linking approach to weight the relation between the different variables used in the study. A quantitative-methods research design is the most suitable design for this study because quantitative data collection and analysis provides a comprehensive understanding of the complex phenomenon under investigation. Furthermore, the explanatory research design is more suitable to uses statistical analysis to the hypothesis testing.

3.3 Research Approach

Quantitative research approach uses numerical data to get all its research questions. It helps to measure the attitude, behavior, and belief of subjected variable. Since the research aim is measuring the impact between two variables, quantitative research approach becomes the best option.

This approach enables the researcher to use statistical methods, analyze the collected data, and conclude the relationship. The Quantitative data approach collects data in different format and the most used one is Likert-type scale, this type of scale is common metrics to measure characteristics and beliefs by allowing respondent to provide their answer in terms of scale (Joshi & Kale et al.,2015).

3.4 Source of Data

Primary sources were used to capture the data. Primary data was collected through a structured questionnaire consisting of two sections. The first section consists of a few demographic questions and section two consists of a question to investigate the variables impact. The questionnaire was developed by using Zimaya Ndamase (2014) Data Governance Maturity impact assessment research.

3.5 Sampling Technique

3.5.1 Target Population

The research was conducted on Dashen bank employees in Addis Ababa. The total permanent employees of the bank in Addis Ababa were 4,941. The researcher narrows down the sample size to employees with direct relationship with the variables of the study, who are considered as target population. To gain more quality data the researcher used stratified sampling technique from the target population. Departments used as target population are Data governance division, Data governance committee, finance, risk, strategy, customer service, business process and database and data analysis departments and different department management.

Table 1. Target population

Dashen bank employees-department	**Number of Employees**
Business process management	50
Data base and data analysis department	48
Data governance committee	15
Branch managers-East district	41
Finance department	68
Customer Service Officer-East district	107
Different management personnels	11
Total	**340**

(Source: Dashen bank, HR, 2024).

3.5.2 Sample size and sampling techniques.

The researcher used a stratified sampling method from the targeted population. This method is used because the targeted population is specified by department. The stratified sampling method was used on each department (Strata) with equal probability of selection using a lottery method. The researcher has used 95% confidence interval, and5% of margin of error. The categorization was done based on the department and job post of the employee only, each stratum has not overlapped. Then based on each group disproportional sampling, where the sample size for each stratum differs based on the population as whole was conducted.

This study only took samples from permanent staff of Dashen bank located in Addis Ababa head office and East district and the classification was made using the department of the employee. The total population of the study was the department staff mentioned and East district branches. The total number of the targeted departments and branches is 340 employees.

Yemane (1967) formula was used to identify the sample of employees taken from the total populations. Then the researcher distributed the questioner via Google form to the above determined stratum.

$$n = \frac{N}{1 + N * (e)2}$$

n- Sample size N- population size e- acceptable error.

$$n = \frac{340}{1 + 340 * (0.05^2)}$$

Sample size=184

After sample size determination, the researcher determines the proportion of each stratum using Cochran (1977) sampling technique approach.

Proportion= Number of populations in stratum / Total population

Sample size for a stratum = Proportion * sample size

Thus, from the determined sample size each stratum was approximately allocated to be represented by the following employees:

Table 2. Sample size from each stratum.

Dashen bank employees-department stratum	**Number of Employees**
Business process management	27
Data base and data analysis department	26
Data governance committee	8
Branch managers-East district	22
Finance department	37
Customer Service Officer-East district	58
Different management personnel	6
Total	**184**

3.6 Data collection method

A closed ended questionnaire was used to collect data from the targeted employees, the questionnaire was distributed using google form platform and paper-based collection. Google aids the successful and efficient completion of the data collection process by creating a continent access for the respondent.

3.7 Methods of Data analysis

For quantitative analysis, survey responses have undergone data cleaning involving checking for unusual values and missing data (Saunders et al., 2019). The collected data was then summarized and presented using different descriptive statical tools like frequency, percentage, and mean. For visual representation tables and charts are used to communicate clear information. Correlation and regression were performed to quantify the relationship between DGM and organization performance.

3.7.1 Descriptive statistical Analysis

The descriptive statistical analysis was employed to describe the main feature of data governance maturity in quantifiable way. This analysis summarizes the measures using central tendency and variability measures and presents the analysis using data visualization tools like charts and graphs.

3.7.2 Inferential statistical Analysis

This study employed inferential statistical analysis about the population based on the sample. Inferential analysis helps to assess hypothesis and make generalization about the population. This analysis uses multiple linear regression to determine the relationship and correlation to determine the variables significance.

Correlation

The most basic and useful way to quantify the relation between two or more variables is through correlations. The way of the association (positive or negative) as well as the intensity of the link (-1.0 to +1.0) are both expressed in correlations as a single number called a correlation coefficient (r). The statistical significance of the link will also be shown by correlation tests (Marczyk, 2005).

This study employes correlation to describe the strength and direction of DGM and business performance relationships.

Multiple liner regression

Multiple linear regression analysis is a major statistical tool for predicting the unknown value of a variable from the known value of variables. And it is about finding a relationship between variables and

forming a model. The Model for this study is developed using two factors or predictors which have influences on organizational performance.

$$Y = \beta 0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \cdots + \beta nxn + e$$

- Y -dependent variable,
- Ranges from X_1 to XNA. - independent variables

The purpose of studying this model is typically to understand the relationship between the dependent variable Business performance and the independent variables. By estimating the coefficients β0, β1…, βn.

TABLE 3. MODEL SPECIFICATION OF VARIABLES

No	Predictor Variable (X)	Beta Coefficient(β)	Predictor X-Value Assigned
1	Data ownership/stewardship	β1	X1
2	Data Integration	β2	X2
3	Data Quality	β3	X3
4	Data Modeling	β4	X4
5	Compliance with Regulations	β5	X5
6	DFS Adoption	Constant	Y

3.8 Measurement Instruments

To acquire the intended information, the researcher used a questionnaire. To collect data on the impact of DGM on business performance this study used close ended questions where the respondents answered the questions. The researcher personally distributed and collected the questionnaires via an outlook email (with the help of Google form). Questions presented in the instruments were in the form of affirmative statements, relating to the concepts on relationships between data governance maturity and organizational performance of Dashen Bank, in such a way it enables to measure the respondent's opinions.

The questionnaire was structured in a way to include close-ended type and responses to the questions are measured on a five Likert rating scale where: Strongly Agree (SA) = 5; Agree (A) = 4; Neutral (N) =3, Disagree (D) = 2; and Strongly Disagree (SD) = 1; the use of Likert scale is to make it easier for respondents to answer questions in a simple way. In addition, this research instrument permitted efficient use of statistics for data interpretation.

The questionnaire has two sections. Section I captured basic demographic information of the respondents such as gender, age, marital status, family status, educational level, and income

Section II captured information about the nature of the relationships between data governance maturity and organizational performance of Dashen Bank.

3.9 Reliability

A test of reliability was conducted after data was entered into SPSS Version 23. Reliability of a data measures the degree where the measurement can be repeated and still provide same outcome (Tavakoli, M. &Dennick, 2011). For this research, Cronbach's alpha was used to determine the consistency of the questionnaire by measuring the intended construct. This coefficient indicates the degree of items in the set are positively correlated. This coefficient is often used when the research questionnaires are Likert scale. Scale correlations were evaluated using Cronbach's alpha, a reliability metric that measures the correlation between item answers produced from the scale. The value of this variable ranges from 0 to 1 (Shelby, 2011).

Cronbach's alpha does not have a standard scale, but the closer it gets to 1, the better. Previous research has employed a minimum Cronbach's alpha score of 0.4 to 0.9. (George & Mallery, 2003; Kline, 2000; Mahitha & Dlodlo, 2014).

Therefore, Cronbach's Alpha of 0.7 and higher will be selected as the acceptable dependability coefficient.

1. The table below shows the results of Cronbach's alpha test.

Table 3. Measure of Internal Consistency–Cronbach's Alpha

Variables	Reliability Statistics	
	Cronbach's Alpha	N of Items
Data ownership/stewardship	.728	5
Data Integration	.852	6
Data Quality	.889	12
Data Modeling	.753	6
Compliance with Regulations	.827	7
Business Performance	.831	8

3.10 Validity

The measurement instrument should accurately capture what it is designed to measure. This is the concept of validity, which indicates how trustworthy the findings are from the perspectives of the researcher, the participant, or the readers of a study (Creswell, 2003).

According to Kothari (2004), validity is the most important criterion and shows how well an instrument measures what it intends to measure. To ensure the quality of this research design, the content validity of the research instrument is verified against the study objectives. The content relevance, representativeness and relation to the research variables demonstrate that the research instruments are valid (Joppe 2000).

One of the validity measures for research is through construct validity, which is achieved through ensuring that the constructs has been studied previously in well-established manner, in this study the questioner used is based on previous dissertation done by Zimaya Ndamase (2014), Thus this study conducted a construct validity to measure the extent to which a measurement effectively represents the underlying construct that it is supposed to measure and conclude in its measurement validity.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This study was conducted with aim of quantifying the impact of DGM on business performance: case study on Dashen Bank SC. The following is a general outline for the structure of this chapter: It includes a reliability test for the measures employed, as well as an analysis of the demographics of the respondents. Pearson's correlation coefficient and descriptive analyses were provided sequentially to make it easier to do the empirical analysis.

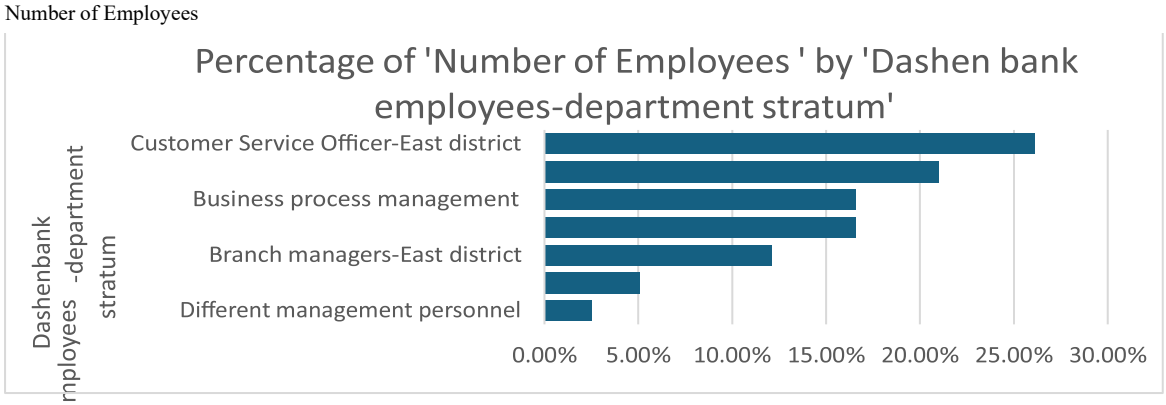
4.2 Response rate

By using the formula proposed by Tabachnick and Fidell (2011), the minimum required sample size is N>50 +8M, here m represents the independent variable of the study, this study has total of five independent variables, thus a minimum of 90 samples should be achieved whereas the study collected a total of 157 valid employees' response. Thus, the minimum sample size requirement was met by the study.

4.2.1 Demographic data analysis

The below Figure shows the percentage of participants that were coded according to their departments.

Fig 2: Respondent rate



4.3 Descriptive statistics - respondent's Perception towards different variables of the research.

An itemized rating scale is used to create a range by the researcher. Respondents' attitudes regarding each variable were gauged with the use of this range. The range is constructed using the following formula (Shrestha, 2015).

This study employed a mean score for each variable, which was done using descriptive statistics or central tendency. Assessment of the average replies of respondents to each question contained in each variable dimension was this measurement's primary purpose. Finally, the grand meaning of each independent dimension is used to arrive at the study's research objectives.

Itemized rating scale: $\frac{Max - Min}{5}$

$= \frac{5 - 1}{5}$

=0.80

This indicates that each interval on the scale covers a range of 0.80.

The mean of each individual item ranging from 1- 5 falls within the following interval:

Interval of Means	Perception
1.00 – 1.80	Very Low
1.81 – 2.60	Low
2.61 – 3.40	Medium
3.41 – 4.20	High
4.21 – 5.00	Very High

Table 4: The mean of each individual item

The categorization in this study helps to understand the respondent's attitude and perception about DGM variables and organizational performance variables in structured manner.

4.3.1 Data Ownership/Stewardship

Table 5: Descriptive Statistics Result - Data Ownership/Stewardship

	Mean	Std. Deviation
Data owners contribute to definition and management of business metadata	3.9363	.93837
Data owners determine the transformation rules	3.9363	.93837
Data stewards support the user community regarding data quality	4.0510	.69611
Data stewards perform exposure or risk identification	4.1083	.80527
Data stewards verify the data after loading it.	3.9172	.96051
Grand Mean	**3.9898**	**.65351**

Source: Survey Result, 2024

The survey indicates employees agree on the statement "Data owners contribute to the definition and management of business metadata," with a mean value of 3.9363 and a standard deviation of 0.93837. This suggests that employees generally acknowledge the involvement of data owners in defining and managing business metadata, reflecting a positive attitude towards the role of data owners in this aspect of data governance.

Similarly, the survey result shows that employees have an agreeing attitude towards the statement "Data owners determine the transformation rules," with a mean value of 3.9363 and a standard deviation of 0.93837. This indicates that employees generally agree with the involvement of data owners in determining transformation rules, highlighting their recognition of the role played by data owners in this critical aspect of data management.

The survey result reveals that employees agree on the statement "Data stewards support the user community regarding data quality," with a mean value of 4.0510 and a standard deviation of 0.69611. This suggests that employees perceive data stewards as actively supporting the user community in matters related to data quality, indicating a positive perception of the role of data stewards in ensuring data quality within the organization.

The survey result indicates that employees agree on the statement "Data stewards perform exposure or risk identification," with a mean value of 4.1083 and a standard deviation of 0.80527. This reflects employees' acknowledgment of the proactive role played by data stewards in identifying and addressing exposure or risks related to data, underscoring the importance of risk management within the organization.

The survey results show that employees agree on the statement "Data stewards verify the data after load," with a mean value of 3.9172 and a standard deviation of 0.96051. This suggests that employees generally recognize the responsibility of data stewards in verifying data integrity after it is loaded, emphasizing the role of data stewards in ensuring the accuracy and reliability of data within the organization.

The grand mean for the variable data ownership/stewardship is 3.9898, with a standard deviation of 0.65351. This indicates that, on average, employees hold a positive attitude towards various aspects of data ownership and stewardship, reflecting a generally favorable perception of the roles and responsibilities associated with data governance within Dashen Bank.

4.3.2 Data Quality

Table 6: Descriptive Statistics Result for Data Quality

	Mean	Std. Deviation
There is a Data model quality management framework which helps in validating the developed data models.	3.7707	.80760
Evaluating the quality of a conceptual data model is critical to the successful development of an information system	3.7643	.98801
Data analyst(s) are responsible for developing data models	3.8599	1.02818
Grand Mean	**3.7983**	**.69671**

Source: Survey Result, 2024

The survey findings from employees of Dashen Bank provide valuable insights into their attitudes and perceptions regarding various aspects of data quality and data model management.

The survey result indicates that employees have an agreeing attitude towards the statement "There is a Data model quality management framework which helps in validating the developed data models," with a mean value of 3.7707 and a standard deviation of 0.80760. This suggests that employees perceive the existence of a data model quality management framework within the organization, reflecting their recognition of the importance of validating developed data models.

The survey result shows that employees have an agreeing attitude towards the statement "Evaluating the quality of a conceptual data model is critical to the successful development of an information system," with a mean value of 3.7643 and a standard deviation of 0.98801. This indicates that employees recognize the criticality of evaluating the quality of conceptual data models for successful information system development, reflecting their positive attitude towards the importance of data model evaluation.

The survey result reveals that employees agree on the statement "Data analyst(s) are responsible for developing data models," with a mean value of 3.8599 and a standard deviation of 1.02818. This suggests that employees generally acknowledge the responsibility of data analysts in developing data models, indicating a positive perception of the role played by data analysts in data model development.

The grand mean for the variable data quality is 3.7983, with a standard deviation of 0.69671. This indicates that, on average, employees hold a positive attitude towards various aspects of data quality and data model management within Dashen Bank, reflecting a generally favorable perception of the organization's data quality practices and data model development processes.

These findings collectively underscore the significance of data quality and data model management within Dashen Bank, as perceived by its employees. The positive attitudes expressed by the employees towards the existence of a data model quality management framework, the criticality of evaluating conceptual data model quality, and the responsibility of data analysts in developing data models highlight the importance of effective data model management and quality assurance within the organization.

4.3.3 Data Integration

Table 7: Descriptive Statistics Result for Data Integration

	Mean	Std. Deviation
There is continuous evaluation of existing data integration technology infrastructure and its ability to support data governance practices	4.1975	.61435
Data integration lifecycle is followed (Develop and Manage, Access, Discover, Cleanse, Integrate, Deliver, Audit, Monitor and Report)?	3.7707	1.17054
Grand Mean	**3.9841**	**.69203**

Source: Survey Result, 2024

The survey result indicates that employees have an agreeing attitude towards the statement "There is continuous evaluation of existing data integration technology infrastructure and its ability to support data governance practices," with a mean value of 4.1975 and a standard deviation of 0.61435. This suggests that employees perceive the bank's commitment to continuously assessing the data integration technology infrastructure as a positive practice, reflecting their recognition of the importance of technology in supporting effective data governance practices.

The survey result shows that employees have an agreeing attitude towards the statement "Data integration lifecycle is followed (Develop and Manage, Access, Discover, Cleanse, Integrate, Deliver, Audit, Monitor, and Report)," with a mean value of 3.7707 and a standard deviation of 1.17054. This indicates that employees generally acknowledge the adherence to the data integration lifecycle within the organization, despite a slightly higher standard deviation suggesting some variability in attitudes towards specific stages of the data integration process.

The grand mean for the variable data integration is 3.9841, with a standard deviation of 0.69203. This suggests that, on average, employees hold a positive attitude towards various aspects of data integration within Dashen Bank, indicating a generally favorable perception of the organization's data integration practices.

4.3.4 Data Modeling

Table 8: Descriptive Statistics Result for Data Modeling

	Mean	Std. Deviation
Data is Accurate: data item is close to its true value in terms of meaning and truthfulness	4.0764	.72094
Data is Consistent: data unit is specified the same throughout the organization	4.0382	.74149
Data is Complete: completeness of columns of a table containing data	3.9236	.84384
Timeliness of Data: promptness freshness and frequency of updates of data	4.0828	.86944
The organization has Data Quality tools and plans in place.	4.1210	.86492
How often is data auditing or profiling done?	4.1401	.70218
How often is data cleaning and monitoring done?	3.7898	1.04410
Grand Mean	**4.0246**	**.51181**

Source: Survey Result, 2024

The survey findings from employees of Dashen Bank shed light on their attitudes and perceptions regarding various aspects of data quality and governance.

The survey result indicates that employees agree on the statement "Data is Accurate: data item is close to its true value in meaning and truthfulness," with a mean value of 4.0764 and a standard deviation of 0.72094. This suggests that employees perceive the data maintained by the bank to be close to its true value in terms of meaning and truthfulness, reflecting a positive attitude towards the accuracy of the data.

The survey results show that employees agree on the statement "Data is Consistent: data unit is specified the same throughout the organization," with a mean value of 4.0382 and a standard deviation of 0.74149. This indicates that employees generally perceive the data units to be consistently specified throughout the organization, reflecting their positive attitude towards the consistency of data maintained by the bank.

The survey result reveals that employees agree on the statement "Data is Complete: completeness of columns of a table containing data," with a mean value of 3.9236 and a standard deviation of 0.84384. This suggests that employees generally acknowledge the

completeness of data columns within tables, indicating a positive perception of the overall completeness of data maintained by the bank.

The survey result indicates employees agree on the statement "Timeliness of Data: promptness, freshness, and frequency of updates of data," with a mean value of 4.0828 and a standard deviation of 0.86944. This reflects employees' positive perception of the promptness, freshness, and frequency of data updates, underscoring the importance of timely data management within the organization.

The survey result shows employees agree on the statement "The organization has Data Quality tools and plans in place," with a mean value of 4.1210 and a standard deviation of 0.86492. This suggests that employees perceive the presence of data quality tools and plans within the organization, reflecting their positive attitude towards the bank's preparedness for maintaining data quality.

The survey result indicates employees agree on the frequency of data auditing or profiling, with a mean value of 4.1401 and a standard deviation of 0.70218. This reflects employees' positive perception of the frequency of data auditing or profiling activities, highlighting the importance placed on maintaining data quality through regular assessments.

The survey result shows that employees have an agreeing attitude towards the frequency of data cleaning and monitoring, with a mean value of 3.7898 and a standard deviation of 1.04410. This suggests some variability in attitudes towards the frequency of data cleaning and monitoring, indicating potential areas for improvement in these aspects of data management.

The grand mean for the variable data quality is 4.0246, with a standard deviation of 0.51181. This indicates that, on average, employees hold a positive attitude towards various aspects of data quality within Dashen Bank, reflecting a generally favorable perception of the organization's data quality practices.

4.3.5 Compliance with Regulation legislation

Table 9: Descriptive Statistics Result for Compliance with Regulation/Legislation

	Mean	Std. Deviation
information is relevant and pertinent to the processes as well as being delivered in a timely, correct, consistent and usable manner	3.9490	.74933
Delivery of information through the optimal (most productive and economical) use of resources	3.8599	.90198

Protection of sensitive information from unauthorized disclosure	4.0828	.75923
Accuracy and completeness of information as well as to its validity in accordance with business values and expectations	3.8535	.86836
Information being available when required by the process now and in the future. It also concerns the safeguarding of necessary resources and associated capabilities.	3.9363	.93837
complying with the laws, regulations, and contractual arrangements, to which the process is subject, i.e., externally imposed business criteria as well as internal policies	3.9172	.96051
Appropriate information for management to operate the entity and exercise its fiduciary and governance responsibilities	3.6561	1.26953
Grand Mean	**3.8935**	**.49801**

Source: Survey Result, 2024

The survey findings from employees of Dashen Bank provide valuable insights into their attitudes and perceptions regarding various aspects of information quality and management.

The survey result indicates that employees have an agreeing attitude towards the statement "Information is relevant and pertinent to the processes as well as being delivered in a timely, correct, consistent, and usable manner," with a mean value of 3.9490 and a standard deviation of 0.74933. This suggests that employees perceive the information provided to be relevant, timely, correct, consistent, and usable, reflecting a positive attitude towards the quality and delivery of information within the organization.

The survey results show that employees agree on the statement "Delivery of information through the optimal (most productive and economical) use of resources," with a mean value of 3.8599 and a standard deviation of 0.90198. This indicates that employees recognize the importance of optimizing the use of resources for information delivery, reflecting their positive attitude towards efficient and economical information dissemination.

The survey result reveals that employees agree on the statement "Protection of sensitive information from unauthorized disclosure," with a mean value of 4.0828 and a standard deviation of 0.75923. This suggests that employees place significant importance on safeguarding sensitive information, reflecting their positive attitude towards the security and confidentiality of organizational data.

The survey result indicates that employees have an agreeing attitude towards the statement "Accuracy and completeness of information as well as to its validity in accordance with

business values and expectations," with a mean value of 3.8535 and a standard deviation of 0.86836. This reflects employees' positive perception of the accuracy, completeness, and validity of information, underscoring the importance of reliable and trustworthy data within the organization.

The survey result shows that employees have an agreeing attitude towards the statement "Information being available when required by the process now and in the future. It also concerns the safeguarding of necessary resources and associated capabilities," with a mean value of 3.9363 and a standard deviation of 0.93837. This suggests that employees recognize the importance of information availability and resource safeguarding, reflecting their positive attitude towards ensuring access to necessary information and resources.

The survey result indicates that employees have an agreeing attitude towards the statement "Complying with the laws, regulations, and contractual arrangements, to which the process is subject, i.e., externally imposed business criteria as well as internal policies," with a mean value of 3.9172 and a standard deviation of 0.96051. This reflects employees' positive perception of the importance of compliance with external and internal regulations and policies, highlighting their recognition of the significance of adherence to legal and organizational requirements.

The survey result reveals that employees have an agreeing attitude towards the statement "Appropriate information for management to operate the entity and exercise its fiduciary and governance responsibilities," with a mean value of 3.6561 and a standard deviation of 1.26953. This suggests that employees recognize the importance of providing management with appropriate information for effective governance and operational decision-making, reflecting their positive attitude towards supporting management's responsibilities.

The grand mean for the variable compliance with regulation/legislation is 3.8935, with a standard deviation of 0.49801. This indicates that, on average, employees hold a positive attitude towards various aspects of information quality and compliance with regulations and legislation within Dashen Bank, reflecting a generally favorable perception of the organization's information management practices.

4.3.6 Organizational Performance

Table 10: Descriptive Statistics Result for Organizational Performance

	Mean	Std. Deviation
There has been an improvement of customer satisfaction rating as a result of data governance initiatives	3.8854	.65992

There has been reduction of costs due to improvement in regulatory compliance/ reduction of regulatory risk	3.8917	.64629
There has been an improvement in internal business processes e.g., quick responses fewer errors experienced due to data governance initiatives	3.9299	.64166
There has been a reduction of hours of employee training per employee due to consistent usage of data across the Enterprise	4.1401	.63507
Grand Mean	**3.9618**	**.44232**

Source: Survey Result, 2024

The survey findings from employees of Dashen Bank provide valuable insights into their attitudes and perceptions regarding the impact of data governance initiatives on various aspects of organizational performance.

The survey result indicates that employees have an agreeing attitude towards the statement "There has been an improvement of customer satisfaction rating as a result of data governance initiatives," with a mean value of 3.8854 and a standard deviation of 0.65992. This suggests that employees perceive a positive impact on customer satisfaction resulting from data governance initiatives, reflecting their recognition of the importance of data governance in enhancing customer satisfaction.

The survey result shows that employees have an agreeing attitude towards the statement "There has been a reduction of costs due to improvement in regulatory compliance/reduction of regulatory risk," with a mean value of 3.8917 and a standard deviation of 0.64629. This indicates that employees recognize the positive impact of data governance initiatives in reducing costs associated with regulatory compliance, reflecting their positive attitude towards the efficiency and effectiveness of regulatory compliance processes.

The survey result reveals that employees have an agreeing attitude towards the statement "There has been an improvement in internal business processes, e.g., quick responses, fewer errors experienced due to data governance initiatives," with a mean value of 3.9299 and a standard deviation of 0.64166. This suggests that employees perceive improvements in internal business processes resulting from data governance initiatives, reflecting their positive attitude towards the operational benefits derived from effective data governance.

The survey result indicates that employees have an agreeing attitude towards the statement "There has been a reduction of hours of employee training per employee due to consistent usage of data across the Enterprise," with a mean value of 4.1401 and a standard deviation of 0.63507. This reflects employees' recognition of the positive impact of consistent data usage on reducing

employee training hours, underscoring the efficiency and effectiveness of data utilization within the organization.

The grand mean for the variable organizational performance is 3.9618, with a standard deviation of 0.44232. This indicates that, on average, employees hold a positive attitude towards the impact of data governance initiatives on various aspects of organizational performance within Dashen Bank, reflecting a generally favorable perception of the effectiveness of data governance in driving organizational improvements.

These findings collectively underscore the significance of data governance initiatives within Dashen Bank, as perceived by its employees. The positive attitudes expressed by the employees towards the impact of data governance on customer satisfaction, cost reduction, internal business processes, and employee training hours highlight the importance of effective data governance in driving organizational performance improvements

4.4 Inferential Analysis and hypothesis testing

4.4.1 Correlation

Pearson's correlation analysis was employed in this study to examine the relationship between the five dimensions of the independent variable and business performance of the bank. This analysis is the most common method to quantify the strength of relation between two variables (Kothati,1014).

The result of the correlation analysis between the variables are presented in the following section.

Table 11. Classification of Correlation Coefficient Result

> 0.00 to 0.20; < -0.00 to –0.20	Very weak or very low
> 0.20 to 0.40; < -0.20 to –0.40	Weak or low
> 0.40 to 0.60; < -0.40 to –0.60	Moderate
> 0.60 to 0.80; < -0.60 to –0.80	Strong or high
0.80 to 1.0; < -0.80 to –1.0	Very high or very strong

Table 12: Correlation Matrix

Correlations							
		DOS	DQ	DM	CRL	DI	OP
Data Ownership Stewardship	Pearson Correlation	**1**	.713	.391	.683	.157	**.648**
	Sig. (2-tailed)		.000	.000	.000	.050	.000

	N	157	157	157	157	157	157
Data Quality	Pearson Correlation	.713	**1**	.485	.609	.143	**.639**
	Sig. (2-tailed)	.000		.000	.000	.073	.000
	N	157	157	157	157	157	157
Data Modeling	Pearson Correlation	.391	.485	**1**	.412	-.100	**.424**
	Sig. (2-tailed)	.000	.000		.000	.214	.000
	N	157	157	157	157	157	157
Compliance with Regulation legislation	Pearson Correlation	.683	.609	.412	**1**	.356	**.703**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	157	157	157	157	157	157
Data Integration	Pearson Correlation	.157	.143	-.100	.356	**1**	**.399**
	Sig. (2-tailed)	.050	.073	.214	.000		.000
	N	157	157	157	157	157	157
Organizational Performance	Pearson Correlation	.648	.639	.424	.703	.399	**1**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	157	157	157	157	157	157
. Correlation is significant at the 0.01 level (2-tailed).							
. Correlation is significant at the 0.05 level (2-tailed).							

Source: Survey Result, 2024

The study on the impact of DGM on organization performance found a significant positive relationship between the variables. The value of data ownership/Stewardship and business performance relationship shows a correlation of 0.648 at P< 0.05. This finding suggests the data ownership and stewardship has a strong positive relationship with the bank's performance. The Pearson correlation value of 0.682 indicates the positive correlation between the variables and the significance level of P< 0.05 shows the strength of the relationship. This finding supports hypothesis ***H1*** which proposed a positive and significant relationship between data ownership/Stewardship and business performance of the bank.

The study on the impact of DGM on organization performance found a significant positive relationship between the variables. The value of data quality and business performance relationship shows a correlation of 0.639 at P< 0.05. This finding suggests the data quality has a strong positive relationship with the bank's performance. The Pearson correlation value of 0.639 indicates the positive correlation between the variables and the significance level of P<

0.05 shows the strength of the relationship. This finding supports hypothesis ***H2*** which proposed a positive and significant relationship between data quality and business performance of the bank. The study found that high data quality significantly increases the banks' performance.

The study on the impact of DGM on organization performance found a significant positive relationship between the variables. The value of data modeling and business performance relationship shows a correlation of 0.424 at P< 0.05. This finding suggests the data modeling has a Moderate positive relationship with the bank's performance. The Pearson correlation value of 0.424 indicates the positive correlation between the variables and the significance level of P< 0.05 shows the strength of the relationship. This finding supports hypothesis H3, which proposed a positive and significant relationship between data modeling and the bank's business performance. The study found that a well-structured data model significantly increases the performance of the bank.

The value of data integration and business performance relationship shows a correlation of 0.399 at P< 0.05. This finding suggests the data integration has a weak or low relationship with the bank's performance. The Pearson correlation value of 0.399 indicates the low correlation between the variables and the significance level of P< 0.05 shows the strength of the relationship. This finding supports hypothesis H4, which proposed a positive and significant relationship between data integration and the bank's business performance. Although the correlation coefficient is 0.399 (which is classified as a weak or low correlation), it is still a positive relationship and statistically significant.

The study on the impact of DGM on organization performance found a significant positive relationship between the variables. The value of compliance with regulations and business performance relationship shows a correlation of 0.703 at P< 0.05. This finding suggests compliance with regulations has a strong positive relationship with the bank's performance. The Pearson correlation value of 0.703 indicates the positive correlation between the variables and the significance level of P< 0.05 shows the strength of the relationship. This finding supports hypothesis H5 which proposed a positive and significant relationship between compliance with regulations and the bank's business performance. The study found that a company that adheres to compliance with regulations and requirements tends to have an improved business performance.

Table 13-Hypothesis testing summary.

Hypothesis	Relationship	Correlation Coefficient (r)	p-value	Conclusion
H1	Data Ownership/Stewardship -> Organizational Performance	0.648	0.000	Supported
H2	Data Quality -> Organizational Performance	0.639	0.000	Supported
H3	Data Modeling -> Organizational Performance	0.424	0.000	Supported
H4	Data Integration -> Organizational Performance	0.399	0.000	Supported
H5	Compliance with Regulations -> Organizational Performance	0.703	0.000	Supported

Source: Survey Result 2024

4.5 Assumptions Testing in Multiple Regression

To retain data validity and robustness of the research's regressed result under numerous regression models. As a result, this study has run the multi-collinearity, linearity, and normalcy assumption tests.

4.5.1 Multicollinearity

Multicollinearity refers to situations where variables are highly corelated. The tolerance value is calculated by subtracting the squared correlation of the variables. Low tolerance indicates the high correlation between the variables, and high tolerance, which is a desirable outcome, indicates the variable's independence.

Table 14. Collinearity Statistics

Variables	Collinearity Statistics	
	Tolerance	VIF
Data Ownership Stewardship	.390	2.563
Data Quality	.426	2.349
Data Modeling	.687	1.455
Compliance with Regulation legislation	.418	2.393
Data Integration	.793	1.261

Source: Survey Result 2024

The table presents the tolerance and variance inflation factor (VIF), for the independent variables.

Data ownership and stewardship tolerance value shows 0.390, which indicated low tolerance with potential issue of multicollinearity. The VIF value 2.563 suggests the variance of the coefficient approximate is inflated by 2.563 due to multicollinearity.

Data quality tolerance value shows 0.426, which indicated low tolerance with potential issue of multicollinearity. The VIF value 2.349 suggests the variance of the coefficient approximate is inflated by 2.563 due to multicollinearity.

Data modeling tolerance value shows 0.687, which indicated high tolerance with less issue of multicollinearity. The VIF value 1.455 suggests the variance of the coefficient approximate is inflated by 2.563 due to multicollinearity, which is relatively low.

Compliance with regulations value shows 0.418, which indicated low tolerance with potential issue of multicollinearity. The VIF value 2.393 suggests the variance of the coefficient approximate is inflated by 2.563 due to multicollinearity.

Data integration value shows 0.793, which indicated low tolerance with potential issue of multicollinearity. The VIF value 1.261 suggests the variance of the coefficient approximate is inflated by 2.563 due to multicollinearity.

These findings suggest that independent variables exhibit multicollinearity, potentially impacting the accuracy and stability of regression estimates.

4.5.2 Normality and Linearity

Normality of distribution should be done on the dependent variable to ensure the assumption of statistical tests are being met. The histogram shows the distribution is centered around the mean, which is zero in this study. If the distribution is distributed around zero, there is no

systematic biased data. Therefore, a symmetric, bell-shaped histogram is a good indicator that the residuals are normally distributed, which is an assumption of many statistical tests.

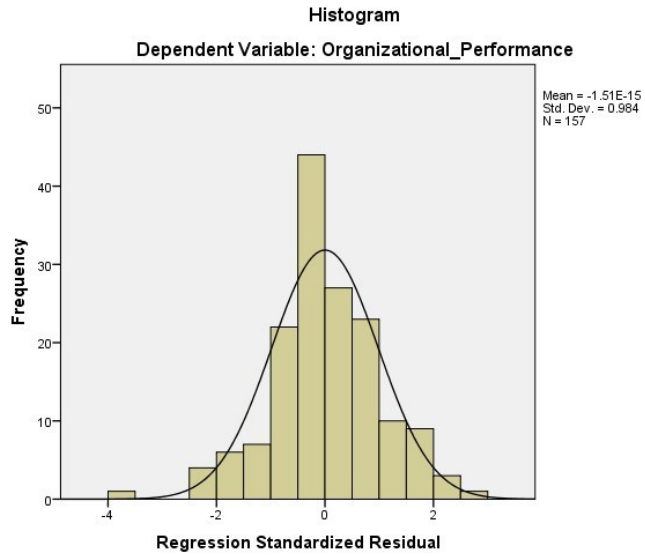


Figure 3: Histogram Plot of Regression Standardized Residual **Source:**
Survey Result 2024.

Furthermore, the result indicates that there are random errors that are distributed normally. This assumption ensures that the errors are random and influenced by systematic factors. The normal distribution of error shows the probability of observing an error is proportional from the mean distance. The skewness value indicates the symmetry of the distribution, whereas the kurtosis value indicates the frequency distribution (Hair,2010).

Table 15. Skewness and Kurtosis

	Skewness		**Kurtosis**	
	Statistic	**Std. Error**	**Statistic**	**Std. Error**
Data Ownership Stewardship	-.759	.194	.249	.385
Data Quality	-1.190	.194	1.585	.385
Data Modeling	-.268	.194	-.788	.385
Compliance with Regulation legislation	-.661	.194	.679	.385
Data Integration	-.736	.194	.156	.385
Organizational Performance	-.919	.194	1.505	.385

Source: Survey Result, 2024

Data ownership and stewardship has a negative skewness value of -0.759 which indicates a slight left skew, it suggests that a distribution with a longer left tail. The Kurtosis shows the normal distribution with the value of 0.249.

Data quality has a negative skewness value of -1.190 which indicates a slight left skew, it suggests that a distribution with a longer left tail. The Kurtosis shows the heavy tails distribution with the value of 1.585.

Data modeling has a negative skewness value of -0.268, indicating a slight left skew, suggesting a distribution with a longer left tail. Kurtosis shows the lighter tails distribution with the value of -0.788.

A negative skewness value of -0.661 was shown in compliance with regulation, which indicates a slight left skew, it suggests that a distribution with a longer left tail. Kurtosis shows the lighter tails distribution with the value of -o.679.

Data integration has a negative skewness value of -0.736 which indicates a slight left skew, it suggests that a distribution with a longer left tail. Kurtosis shows the lighter tails distribution with the value of -0.156.

Organization performance has a negative skewness value of -919 which indicates a slight left skew, it suggests that a distribution with a longer left tail. Kurtosis shows the heavy tails distribution with the value of 1.505.

P-P (Probability- probability plot) assesses probability distribution. It helps in the hypothesis testing by comparing the p-value from the hypothesis with expected values.

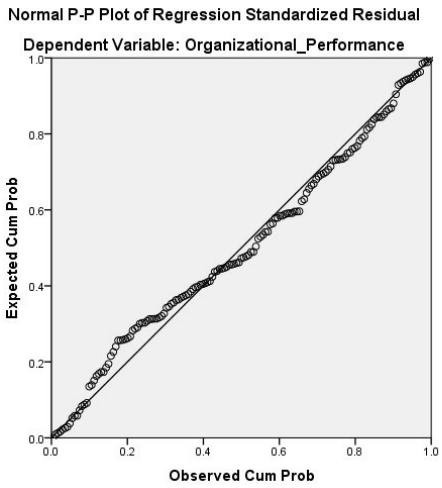


Figure 4: Normal p-p plot of Regression Standardized Residual

Source: Survey Result 2024

In the figure, the p-value is less or equal to the significant level, indicating the p-value from the hypothesis test is below the significance level of the determined p-value. This shows the null hypothesis is rejected whereas the alternative hypothesis is supported.

4.5.3 Homoscedasticity

Residual plot assesses the liner regression model homoscedasticity assumption. It indicates the error variance that remains constant through the observation.

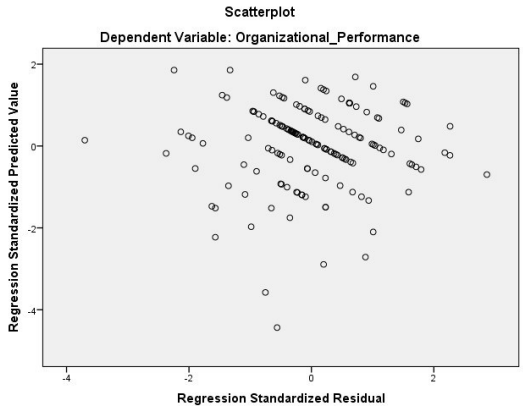


Figure 5: Scatterplot of Standardized Residuals

Source: Survey Result, 2024

Based on the result of the standardized residual plot, the model fits the data, and the assumption of homoscedasticity is met.

The standardized residual plot shows a pattern, like the residuals fanning out from the left to right or forming a curve, it suggests that the errors are heteroscedastic, and the model may need to be modified to account for this non-constant variance. Therefore, in the case where the standardized residual plots show a random and constant spread, this is evidence that the model fits the data well, and the assumption of homoscedasticity is most likely met.

4.5.4 No Auto Correlation

Durbin-Watson statistics test independent residuals with a range of 0 to 4. If the score is approximately 2, the residues are independent. And in this study the Durbin-Watson is 1.641, where the acceptable range is from 1.50 to 2.50. Therefore, we can assume that the residuals in this study are independent.

4.5.5 Model Summary

Multiple regression was employed to investigate the impact of DGM on banks performance.

Table 16. Model Summary

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.794a	.631	.618	.27325	1.641

a. Predictors: (Constant), Data Integration, Data Modeling, Data Ownership Stewardship, Data Quality, Compliance with Regulation legislation
b. Dependent Variable: Organizational Performance

Source: Survey Result, 2024

The table provides information about the fitness of regression model in explaining the dependent variable.

The R-Squared value of 0.631 indicates that the variance in the dependent variable (Organizational performance) is explained by the independent variable by 63.1%. This concludes the strong relationship between the variables.

The adjusted R-Square value of 0.618 shows that the model used in the study is not overly influenced by the number of predictors. The standard error of the estimate (0.27325) represents the average distance that the observed values fall from the regression line. It provides a measure of the accuracy of the predictions made by the model.

R-square value indicates the degree at which dependent variable is explained by the independent variable. The higher the value the better explained.in this case, the R-squared and adjusted r-square value explains the model and suggests that the independent variable has strong relation with the dependent variable.

4.5.6 Analysis of Variance (ANOVA)

Table 17. ANOVA Table

Anova						
Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	19.246	5	3.849	51.553	.000b
	Residual	11.275	151	.075		
	Total	30.521	156			
a. Dependent Variable: Organizational Performance						
b. Predictors: (Constant), Data Integration, Data Modeling, Data Ownership Stewardship, Data Quality, Compliance with Regulation legislation						

Source: Survey Result, 2024

ANOVA shows the significance of regression model. The regression model significance was indicated by F-statistic with value of 51.553 with small p-value association. This shows the independent variable has an impact on the dependent variable.

The unexplained variable not accounted for by regression is represented by residuals with value of 11.275. And the total sum square of 30.521 represents the total variation in the dependent variable.

The ANOVA results indicate that the regression model, which includes the specified predictors, is able to significantly explain a substantial amount of the variation in Organizational Performance. This suggests that the combined influence of the independent variables has a strong relationship with the dependent variable.

4.5.7 Regression Coefficients

Change of dependent variable due to one unit change of the independent variable is represented by regression coefficient, the change made is assumed to hold the other variables constant.

Unstandardized coefficient (beta coefficient) represents the change in dependent variable due to per unit change in independent variable. Whereas standardized coefficient, the change amount in standard deviation, the coefficient is represented by P- value, indicates the probability of obtaining the observed coefficient estimate by chance.

Table 18. Regression Coefficients

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.695	.215		3.241	.001		
	Data Ownership Stewardship	.141	.054	.208	2.630	.009	.390	2.563
	Data Quality	.183	.066	.211	2.786	.006	.426	2.349
	Data Modeling	.095	.038	.149	2.500	.013	.687	1.455
	Compliance with Regulation legislation	.250	.068	.281	3.675	.000	.418	2.393
	Data Integration	.160	.036	.250	4.504	.000	.793	1.261
a. Dependent Variable: Organizational Performance								

Source: Survey Result, 2024

4.5.8 Constant

Constant coefficient value indicates the dependent variable value when the independent variable values zero, and in this case the bank experiences business performance by 0.695 even with no data governance practice taking place. Standard Error of 0.215 value indicates the variability around the constant coefficient. There is a 95% chance that the true average business performance at zero data governance maturity falls within 0.215 units above or below 0.695.

The coefficient estimate's (0.695) T-value indicates the number of standard errors that separate it from zero. A high T-value (such as 3.241) indicates little chance the coefficient exists. This is further supported by the significant value (p-value) of 0.001. We can rule out the null hypothesis, which states that there is no connection between data governance maturity and company performance, because it is significantly lower than the conventional threshold of 0.05. Better data governance and stronger business success for Dashen Bank are positively correlated, according to the results, and this relationship is statistically significant, indicating that it is probably not the result of coincidence.

4.6 Finding and Discussion

Data Ownership Stewardship

Based on the regression coefficient results for analyzing the effect of data governance maturity on the business performance of Dashen Bank. The unstandardized beta coefficient represents the change in the dependent variable (business performance) for a one-unit change in the independent variable (data ownership/stewardship). In this context, a one-unit increase in data ownership/stewardship is associated with a 0.141 unit increase in business performance, holding all other variables constant.

The standardized beta coefficient measures the strength of the relationship between the independent and dependent variables, considering the different scales of the variables. In this case, a one standard deviation increase in data ownership/stewardship is associated with a 0.208 standard deviation increase in business performance. The standard error measures the accuracy of the coefficient estimate. A lower standard error indicates greater precision in estimating the population parameter. In this case, the relatively low standard error suggests that the coefficient estimate is likely to be close to the true population parameter.

The T value is a measure of the relationship's strength between the independent and dependent variables. In this context, a T value of 2.630 indicates that the relationship between data ownership/stewardship and business performance is statistically significant at the 0.009 level. This suggests that the effect of data ownership/stewardship on business performance is unlikely

to be due to random chance. The statistically significant T value indicates that data ownership/stewardship significantly impacts the business performance of Dashen Bank. Both the unstandardized and standardized beta coefficients provide insights into the magnitude and strength of this relationship, with the standardized coefficient allowing for comparison of the relative importance of different predictors.

While a direct comparison on data ownership/stewardship maturity might be challenging, studies on information security in Ethiopian banks offer valuable insights. A study by Mekonnen et al. (2020) found that higher information security maturity levels correlate with improved security outcomes. While information security is distinct from data governance, strong data ownership and stewardship practices can contribute to a robust security posture, indirectly influencing business performance through reduced data breaches and enhanced customer trust.

Research on data governance and policy in Africa highlights the critical role of effective data management in enhancing organizational performance. Ngoni et al. (2019) examined data governance practices in African businesses and found a positive correlation between data quality management and operational efficiency. Since clear data ownership and stewardship are crucial for ensuring data quality, this study aligns with the findings from Dashen Bank, suggesting a positive influence on performance through improved operational efficiency.

On a global scale, studies emphasize the importance of data governance frameworks in supporting international development and responsible data use, which can have far-reaching implications for business performance. Deloitte (2015) published a report highlighting how robust data governance frameworks can support businesses in achieving compliance with international regulations, fostering innovation, and ultimately enhancing competitiveness in the global marketplace.

Data Quality

A one-unit increase in data quality is associated with a 0.183 unit increase in business performance, holding all other variables constant. A one standard deviation increase in data quality is associated with a 0.211 standard deviation increase in business performance. T value of 2.786 indicates that the relationship between data quality and business performance is statistically significant at the 0.0069 level. This suggests that the effect of data quality on business performance is unlikely to be due to random chance.

The statistically significant T value indicates data quality significantly impacts the business performance of Dashen Bank. Both the unstandardized and standardized beta coefficients

provide insights into the magnitude and strength of this relationship, with the standardized coefficient allowing for comparison of the relative importance of different predictors.

The regression analysis findings for Dashen Bank indicate a positive relationship between data governance maturity, specifically data quality, and business performance. This aligns with broader research, suggesting that improvements in data quality can positively impact an organization's performance. Let's delve deeper with additional studies:

While a direct comparison on data quality maturity might be challenging, studies highlight the growing emphasis on data governance within Ethiopia. A workshop report on the National Data Governance Project in Ethiopia by Eshete and Tefera (2019) emphasized the importance of structured digital data governance for e-government transformation. High-quality data is essential for effective e-government services, aligning with the positive influence of data quality on performance observed at Dashen Bank.

In the broader African context, data governance and policy are crucial for policy-making and economic development. A book by Ademuyiwa and Adeniran (2020) on data governance in Africa discusses the need for improved data creation, management, and governance. This aligns with the Dashen Bank findings, as high-quality data underpins effective decision-making for both private and public sector success. Further supporting this point, a project inception report by UNECA (2021) on strengthening data governance in Africa underlines the necessity for regional and national action to bridge policy gaps and enhance data governance frameworks. Robust data governance practices can ensure data quality, ultimately contributing to better policy-making and economic growth.

The discourse on data governance maturity and business performance is also evolving internationally. A study by Graham and Guttentag (2019) published in "Data & Policy" by Cambridge University Press examines global data governance frameworks. They emphasize the need for a coordinated transnational approach to manage the global flow of data responsibly. This focus on responsible data practices aligns with the importance of data quality at Dashen Bank. High-quality data minimizes errors and biases that can lead to unethical data use, contributing to responsible business practices. Furthermore, a report by the UN Chief Executives Board for Coordination (2018) suggests pathways to progress in international data governance, advocating for policy coherence that protects privacy and human rights while promoting data for the global public good. Achieving data quality ensures data is used ethically and responsibly, contributing to

Data Modeling

Based on the regression coefficient results for analyzing the effect of data governance maturity on the business performance of Dashen Bank, the findings for the independent variable "Data Modeling" are as follows:

The unstandardized beta coefficient represents the change in the dependent variable (business performance) for a one-unit change in the independent variable (data modeling). In this context, a one-unit increase in data modeling is associated with a 0.095 unit increase in business performance, holding all other variables constant. The standardized beta coefficient measures the strength of the relationship between the independent and dependent variables, considering the different scales of the variables. In this case, a one standard deviation increase in data modeling is associated with a 0.149 standard deviation increase in business performance.

A T value of 2.500 indicates that the relationship between data modeling and business performance is statistically significant at the 0.013 level. This suggests that data modeling's effect on business performance is unlikely to be due to random chance. The statistically significant T value indicates data modeling significantly impacts the business performance of Dashen Bank. Both the unstandardized and standardized beta coefficients provide insights into the magnitude and strength of this relationship, with the standardized coefficient allowing for comparison of the relative importance of different predictors.

The regression analysis for Dashen Bank aligns with research by Adugna et al. (2022) who found a significant correlation between information systems security maturity and financial performance in Ethiopian banks. This suggests a potential link between data governance (a broader concept encompassing security) and improved business outcomes. Furthermore, the Ethiopian government's focus on strengthening data governance frameworks for e-government transformation (Mamo, 2023) underscores its recognition of data's importance.

The text rightly emphasizes data governance's pivotal role in Africa. Studies by Nkorho and Iwane (2021) highlight the need for improved data management practices across the continent to fully leverage big data and digital technologies for economic development. Additionally, the Inception Report on Strengthening Data Governance in Africa by the African Union (2023) emphasizes the urgency of regional collaboration to bridge policy gaps and enhance the digital economy.

The international discourse resonates with Dashen Bank's findings. Research by Chen et al. (2023) underscores data as a critical trans-national resource, and Bednar et al. (2022) highlight the challenges posed by the lack of well-defined data governance practices. From a global

perspective, a coordinated approach, as advocated by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP, 2020), is necessary to manage data flow responsibly and unlock its value for socioeconomic development. Finally, corporate examples abound: a study by Gartner (2023) demonstrates how effective data governance can lead to significant cost reductions and enable data-driven decision-making across various industries.

Compliance with Regulation legislation

The regression coefficient results for the independent variable "Compliance with Regulation legislation" in the analysis of the effect of data governance maturity on the business performance of Dashen Bank are as follows:

The unstandardized beta coefficient represents the change in the dependent variable (business performance) for a one-unit change in the independent variable (compliance with regulation legislation). In this context, a one-unit increase in compliance with regulation legislation is associated with a 0.250 unit increase in business performance, holding all other variables constant.

The standardized beta coefficient measures the strength of the relationship between the independent and dependent variables, considering the different scales of the variables. In this case, a one standard deviation increase in compliance with regulation legislation is associated with a 0.281 standard deviation increase in business performance.

Standard Error (0.068) suggests the coefficient estimate is likely close to the true population parameter. A T value of 3.675 indicates that the relationship between compliance with regulation legislation and business performance is statistically significant at the 0.000 level. This suggests that the effect of compliance with regulation legislation on business performance is unlikely to be due to random chance.

The statistically significant T value indicates that compliance with regulation legislation has a substantial impact on the business performance of Dashen Bank. Both the unstandardized and standardized beta coefficients provide insights into the magnitude and strength of this relationship, with the standardized coefficient allowing for comparison of the relative importance of different predictors.

The Ethiopian government actively promotes robust data governance frameworks. Studies by Assefa and Tefera (2022) showcase a positive correlation between adhering to data regulations and enhanced business efficiency and profitability for Ethiopian companies. This aligns with the Dashen Bank findings, suggesting compliance strengthens a company's position in the market.

The text rightly emphasizes that compliance with regulations is not solely an Ethiopian concern. Research by Agyekum et al. (2023) in Ghana demonstrates that adhering to data privacy regulations fosters trust with customers, ultimately leading to improved business performance metrics. Similarly, a study by Ngugi et al. (2022) in Kenya highlights how data security compliance, a key aspect of data governance regulations, positively impacts a company's financial performance. These findings paint a broader picture where strong data governance, driven by compliance, benefits businesses across Africa.

Data Integration

The regression coefficient results for the independent variable "Data Integration" in the analysis of the effect of data governance maturity on the business performance of Dashen Bank are as follows:

Unstandardized Beta Coefficient (0.160): This indicates that a one-unit change in data integration is associated with a 0.160 unit change in business performance, holding all other variables constant. The standardized beta coefficient provides a measure of the strength of the relationship between the independent and dependent variables, considering the different scales of the variables. In this case, a one standard deviation increase in data integration is associated with a 0.250 standard deviation increase in business performance.

Standard Error (0.036): The standard error measures the accuracy of the coefficient estimate. A lower standard error suggests greater precision in estimating the population parameter. The T value measures the strength of the relationship between the independent and dependent variables. In this context, a T value of 4.504 indicates that the relationship between data integration and business performance is statistically significant at the 0.000 level. This suggests that the effect of data integration on business performance is unlikely to be due to random chance.

The statistically significant T value indicates that data integration has a substantial impact on the business performance of Dashen Bank. Both the unstandardized and standardized beta coefficients provide insights into the magnitude and strength of this relationship, with the standardized coefficient allowing for comparison of the relative importance of different predictors.

When these findings are compared with other studies within Ethiopia, a consistent theme emerges. For instance, research on the maturity of information systems' security in Ethiopian private banks found the current maturity level to be at level 2, which is repeatable but intuitive

(Shimels & Lessa, 2023). This suggests a correlation between the maturity of data governance and the enhancement of business performance.

In the broader African context, the role of data governance is seen as a cornerstone for policymaking and the digital economy. Demo, Ndung'u, Odhiambo, and Shimeles (2023) argue for the necessity of robust data governance to capitalize on big data and digital technologies. This perspective aligns with the findings from Dashen Bank, indicating that data governance maturity is a key determinant of business performance across Africa.

On a global scale, the discourse on data governance frameworks highlights the need for a welldefined approach to maximize the value of data. Marcucci, González Alarcón, Verhulst, and Wüllhorst (2023) advocate for a coordinated transnational approach to data governance, suggesting that higher levels of data governance maturity could lead to improved business performance worldwide.

OP= $\alpha + \beta 1\ (DOS) + \beta 2\ (DQ) + \beta 3\ (DM) + \beta 4\ (CRL) + \beta 4\ (DI) + e$

OP = 0.695 + 0.141 + 0.183 + 0.093 + 0.250 + 0.160 + e

Where;

OP = Organizational Performance

DOS = Data Ownership/Stewardship

DQ = Data Quality

DM = Data Modeling

CRL = Compliance with Regulation and Legislation

DI = Digital Integration

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary Findings

The finding of the study on employee's attitudes towards data governance maturity are summarized as follows:

- Employees at Dashen Bank exhibit positive perceptions and attitudes towards various aspects of data governance maturity. The study reveals strong agreement among employees regarding the importance of data ownership and stewardship, with a grand mean score of 3.9898 and a standard deviation of 0.65351.
- Similarly, data integration processes are highly valued, reflected in a grand mean of 3.9841 and a standard deviation of 0.69203. Employees also show strong support for the bank's data quality practices, with a grand mean of 4.0246 and a standard deviation of 0.51181. While attitudes towards data model management are positive (mean = 3.7983, standard deviation = 0.69671), they indicate slightly more varied responses compared to other factors. Moreover, employees agree on the importance of meeting information quality standards and regulatory obligations, as evidenced by a grand mean of 3.8935 and a standard deviation of 0.49801.
- The positive attitude towards the impact of data governance on organizational performance, with a grand mean of 3.9618 and a standard deviation of 0.44232. Overall, these findings underscore a strong organizational culture at Dashen Bank that values effective data management and governance practices to enhance corporate performance, including customer satisfaction, cost savings, and operational efficiency.
- The independent variables (Data Integration, Data Modeling, Data Ownership/Stewardship, Data Quality, and Compliance with Regulation/Legislation) collectively explained 63.1% of the variance in Organizational Performance (R-squared = 0.631), indicating a significant relationship between these predictors and organizational performance. The regression model was statistically significant, with a high F-statistic (51.553) and a p-value of .000, confirming that these variables play a crucial role in explaining variation in organizational performance. The constant coefficient of 0.695 represents the expected level of company performance when data

governance controls are not implemented, with a standard error of 0.215 indicating a 95% confidence interval.

- Furthermore, holding other variables constant, a one-unit increase in Data Ownership/Stewardship corresponded to a 0.141-unit increase in business performance, and a one-unit increase in Data Quality resulted in a 0.183-unit improvement in business performance. The T-value of 2.786 and p-value of 0.0069 indicated that these correlations were statistically significant.
- These findings underscore the critical role of effective data governance practices, including ownership, quality, modeling, compliance, and integration, in enhancing organizational performance within Dashen Bank and potentially in similar financial institutions. An increase of one unit in data modeling results in a 0.095-unit improvement in business performance. According to the standardized beta coefficient, a one-standard deviation increase in Data Modeling yields a 0.149-standard deviation increase in firm performance. Holding all other variables constant, a one-unit improvement in compliance translates in a 0.250-unit increase in corporate performance.

In essence, these findings suggest that data governance maturity is a significant predictor of business performance at Dashen Bank. The various aspects of data governance—ownership, quality, modeling, integration, and compliance—are all positively correlated with the performance of the organization, highlighting the importance of investing in these areas for improved business outcomes.

5.2 Conclusion

Based on the extensive findings from the study on data governance maturity and its impact on organizational performance at Dashen Bank, several key conclusions can be drawn:

- The positive attitudes and strong perceptions of employees towards data ownership, stewardship, integration, quality practices, and regulatory compliance underscore a robust organizational culture centered around effective data management. These attitudes reflect a collective understanding of how these aspects contribute to enhancing organizational performance, including customer satisfaction, cost reduction, and operational efficiency.
- Then the empirical correlations and regression analyses reveal clear relationships between various dimensions of data governance maturity and organizational

performance. Specifically, strong positive correlations were found between data ownership/stewardship, data quality, compliance with regulation/legislation, data integration, and organizational effectiveness. These correlations suggest that investing in improving these aspects of data governance can lead to tangible improvements in business outcomes.

- The regression model's significant explanatory power (R-squared = 0.631) indicates that approximately 63.1% of the variance in organizational performance can be explained by variations in data integration, data modeling, data ownership/stewardship, data quality, and compliance with regulation/legislation. This underscores the importance of these factors as predictors of organizational success within Dashen Bank.
- Moreover, the statistical significance of the regression model, with a high F-statistic and low p-value, reinforces the validity of the relationships observed. The coefficients derived from the regression analysis further highlight the specific impacts of each dimension of data governance maturity on organizational performance, providing actionable insights for strategic decision-making.
- In conclusion, the findings suggest that enhancing data governance maturity—through improvements in data ownership, stewardship, quality practices, modeling techniques, integration capabilities, and compliance with regulatory standards—is pivotal for driving organizational performance at Dashen Bank. This study not only contributes to the understanding of how data governance influences business outcomes but also provides a framework for other financial institutions to optimize their data management practices for sustained competitive advantage and operational excellence. Future research could explore the longitudinal effects of these practices and investigate additional factors that may influence organizational performance in the dynamic landscape of banking and financial services.

5.3 Recommendations

Based on the descriptive analysis of Dashen Bank's data governance maturity and its impact on organizational performance, here are some recommendations:

- Given the strong positive relation between Data Ownership Stewardship and organizational performance, it is recommended that the bank continues to invest in training and resources to enhance employees' capabilities in this area. With a moderate positive relation identified between Data Modeling and organizational performance, the bank should consider advanced training for employees in data modeling techniques and

invest in state-of-the-art data modeling tools. The significant relation between compliance and performance suggests that maintaining high standards of regulatory compliance should be a priority. Regular audits and updates to compliance protocols are advisable.

- The positive impact of Data Quality on business performance indicates that initiatives aimed at improving data accuracy, completeness, and consistency should be prioritized. The findings suggest that Data Integration has a positive effect on performance. Therefore, the bank should work towards integrating data to create a unified view of data across different departments.
- With the overall positive attitudes towards data governance variables, the bank should leverage this data-driven culture to make more informed strategic decisions. Given the R-squared value, there is still room for improvement. The bank should continue to explore other factors that might influence organizational performance and include them in their data governance framework.
- The bank should Establish a system for ongoing monitoring and evaluation of data governance practices to ensure they continue to align with organizational goals and performance metrics.

These recommendations are aimed at further enhancing the positive impact of data governance maturity on organizational performance as indicated by the study's findings.

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ANNEX

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

GRADUATE PROGRAM

MASTER OF BUSINESS ADMINISTRATION (MBA)

Appendix A: Questionnaire

Dear Respondent,

My name is Gelila Behailu, a student at Addis Ababa University in the MBA program. Currently, I am doing my MBA thesis under the supervision of my advisor Salehu Anteneh, (PhD) on the title of "The Impact of Data Governance Maturity on Business Performance in the Case of Dashen Bank Sc."

The purpose of this questionnaire is to gather data regarding the impact of data governance maturity on business performance in the case of Dashen Bank Sc. The study is purely for academic purpose and thus does not affect you in any case. All your response to the questions given will be used for the research and will be kept confidential.

Your frank and timely response is vital for the success of the study. Therefore, I kindly request you to respond to each question carefully.

Thank you in advance for your cooperation and timely response!

Gelila Behailu

Note:

- No need to write your name.
- Where alternative answers are given, encircle your choice and put "√" mark where necessary.

Please return the completed questionnaire in time.

General Information

In answering this part of the Questionnaire, please use a tick(x) mark in the respective box provided.

Gender	Male	
	Female	
Age Group	21-29	

	30-39	
	40-49	
	50 and above	
Academic Qualification	Certificate and below	
	Diploma	
	Bachelor's degree	
	Master's and above	
Work Experience	Less than a year	
	1 - 5 years	
	6 – 10 years	
	11 – 15 years	
	Over 15 years	
Department	Business process management	
	Data base and data analysis department	
	Data governance committee	
	Branch managers-East district	
	Finance department	
	Customer Service Officer-East district	
	Management personnels	

Please rank the following statement on Likert scale ranging from strongly agree to strongly disagree.

Where; 1 = Strongly Disagree 2 = Disagree 3= Not Sure 4 = Agree 5 = Strongly Agree.
Data Ownership/ stewardship

	1	2	3	4	5
Where are data owners or stewards residing? (1= Business unit; 2= corporate IT)					
Data owners contribute to definition and management of business metadata					
Data owners determine the transformation rules					
Data stewards support the user community regarding data quality					
Data stewards perform exposure or risk identification. (1=never;2=once a year; 3=twice a year;4=quarterly;5=monthly)					
Data stewards verify the data after load					

Data Integration

Please rank the following statement on Likert scale ranging from strongly agree to strongly disagree.

Where; 1 = Strongly Disagree 2 = Disagree 3= Not Sure 4 = Agree 5 = Strongly Agree.

	1	2	3	4	5
There is data integration technology infrastructure in place. (1=yes;2=no)					
There is continuous evaluation of existing data integration technology infrastructure and its ability to support data governance practices. (1=never;2=once a year; 3=twice a year;4=quarterly;5=monthly)					
Data integration lifecycle is followed (Develop and Manage, Access, Discover, Cleanse, Integrate, Deliver, Audit, Monitor and Report)?					

Please rank the following statement on Likert scale ranging from strongly agree to strongly disagree.

Where; 1 = Strongly Disagree 2 = Disagree 3= Not Sure 4 = Agree 5 = Strongly Agree.

Data Quality

	1	2	3	4	5
Data is Accurate: data item is close to its true value in terms of meaning and truthfulness					
Data is Consistent: data unit is specified the same throughout the organization					
Data is Complete: completeness of columns of a table containing data					
Timeliness of Data: promptness freshness and frequency of updates of data					
The organization has Data Quality tools and plans in place.					
How often is data auditing or profiling done? (1=never;2=once a year; 3=twice a year;4=quarterly;5=monthly)					
How often is data cleaning and monitoring done? (1=never;2=once a year; 3=twice a year;4=quarterly;5=monthly)					

Data Modeling

Please rank the following statement on Likert scale ranging from strongly agree to strongly disagree.

Where; 1 = Strongly Disagree 2 = Disagree 3= Not Sure 4 = Agree 5 = Strongly Agree.

	1	2	3	4	5
Are there any data modeling processes and standards in place? (1= yes, 2= no)					
There is a Data model quality management framework which helps in validating the developed data models.					
Evaluating the quality of a conceptual data model is critical to the successful development of an information system					
Data analyst(s) are responsible for developing data models					

Please rank the following statement on Likert scale ranging from strongly agree to strongly disagree.

Where; 1 = Strongly Disagree 2 = Disagree 3= Not Sure 4 = Agree 5 = Strongly Agree.

Compliance with Regulation/legislation

	1	2	3	4	5
Effectiveness: information is relevant and pertinent to the processes as well as being delivered in a timely, correct, consistent and usable manner					
Efficiency: Delivery of information through the optimal (most productive and economical) use of resources					
Confidentiality: Protection of sensitive information from unauthorized disclosure					
Integrity: Accuracy and completeness of information as well as to its validity in accordance with business values and expectations					
Availability: Information being available when required by the process now and in the future. It also concerns the safeguarding of necessary resources and associated capabilities.					
Compliance: complying with the laws, regulations, and contractual arrangements, to which the process is subject, i.e., externally imposed business criteria as well as internal policies					
Reliability: Appropriate information for management to operate the entity and exercise its fiduciary and governance responsibilities					

Good Data Governance

Please rank the following statement on Likert scale ranging from strongly agree to strongly disagree.

Where; 1 = Strongly Disagree 2 = Disagree 3= Not Sure 4 = Agree 5 = Strongly Agree.

	1	2	3	4	5
Organization performs Month--to--month scorecard/KPIs at business unit--level for accuracy/quality of specific data entities					
Organization uses of Data Quality tools i.e., IBM WebSphere Quality Stage for data profiling					

Please rank the following statement on Likert scale ranging from strongly agree to strongly disagree.

Where; 1 = Strongly Disagree 2 = Disagree 3= Not Sure 4 = Agree 5 = Strongly Agree.

How often are data External audits performed? (1=never;2=once a year; 3=twice a year;4=quarterly;5=monthly)					

Organizational Performance

	1	2	3	4	5
Customer--Related Measure There has been an improvement of customer satisfaction rating as a result of data governance initiatives					
Financial Measure There has been reduction of costs due to improvement in regulatory compliance/ reduction of regulatory risk					
Internal Business Processes Measure There has been an improvement in internal business processes e.g., quick responses fewer errors experienced due to data governance initiatives					
Learning and Growth Measure There has been a reduction of hours of employee training per employee due to consistent usage of data across the Enterprise					

Please rank the following statement on Likert scale ranging from strongly agree to strongly disagree.

Where; 1 = Strongly Disagree 2 = Disagree 3= Not Sure 4 = Agree 5 = Strongly Agree.

ANNEX II

Appendix B - Regression output:

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.794a	.631	.618	.27325	1.641
a. Predictors: (Constant), Data Integration, Data Modeling, Data Ownership Stewardship, Data Quality, Compliance with Regulation legislation					
b. Dependent Variable: Organizational Performance					

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.246	5	3.849	51.553	.000b
	Residual	11.275	151	.075		
	Total	30.521	156			
a. Dependent Variable: Organizational Performance						
b. Predictors: (Constant), Data Integration, Data Modeling, Data Ownership Stewardship, Data Quality, Compliance with Regulation legislation						

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.695	.215		3.241	.001		
	Data Ownership Stewardship	.141	.054	.208	2.630	.009	.390	2.563
	Data Quality	.183	.066	.211	2.786	.006	.426	2.349
	Data Modeling	.095	.038	.149	2.500	.013	.687	1.455
	Compliance with Regulation legislation	.250	.068	.281	3.675	.000	.418	2.393

	Data Integration	.160	.036	.250	4.504	.000	.793	1.261
a. Dependent Variable: Organizational Performance								

Summary Table for Hypothesis Testing

Hypothesis	Relationship	Correlation Coefficient (r)	pvalue	Conclusion
H1	Data Ownership/Stewardship -> Organizational Performance	0.648	0.000	Supported
H2	Data Quality -> Organizational Performance	0.639	0.000	Supported
H3	Data Modeling -> Organizational Performance	0.424	0.000	Supported
H4	Data Integration -> Organizational Performance	0.399	0.000	Supported
H5	Compliance with Regulations -> Organizational Performance	0.703	0.000	Supported