



HOW TO STRENGTHEN GOOD GOVERNANCE AND INTERNAL CONTROL THROUGH USE OF TECHNOLOGY

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Abstract: Good governance and internal control are critical components of organizational success. Effective governance ensures that an organization is managed in a transparent, accountable, and responsible manner, while internal control ensures that processes and procedures are in place to minimize risks and prevent fraud. The use of technology has revolutionized the way organizations operate, and it has become an essential tool for improving governance and internal control. Technology can be used to improve governance by enhancing transparency and accountability. This increased transparency helps to build trust and confidence among stakeholders, which is essential for effective governance.

In conclusion, the use of technology is essential for improving governance and internal control. By enhancing transparency, automating processes, improving risk management, and promoting communication and collaboration, organizations can create a culture of accountability and responsibility, which is essential for long-term success.

Key Words - Governance, Internal Control, Risk Management, Technology.

I. INTRODUCTION

Good governance and internal control are two key aspects of organizational management that have received increasing attention in recent years. Good governance refers to the processes, policies, and procedures that organizations must follow to ensure that they are being run fairly, transparently, and accountable. Internal control, on the other hand, refers to the systems and processes that organizations use to manage and control their operations, mitigate risk, and ensure that they are complying with legal and regulatory requirements. Both good governance and internal control are critical for organizations to ensure their success and sustainability, and technology has played a significant role in improving both of these areas.

1.1 Governance

Banks are very important for economic expansion and industrial growth in a country. When banks efficiently mobilize and allocate fund, it reduces the cost of capital, work towards capital formation, and stimulated the growth of the organization and nation as a whole. Given the importance of banks, the governance of banks themselves assumes a central role. If bank managers face sound governance mechanisms they will be more likely to allocate capital efficiently and exert effective corporate governance over the firm they fund. In contrast, if bank managers enjoy enormous discretion to act in their own interest rather than in the interest of shareholder and debt holders then banks will be correspondingly less likely to allocate society saving efficiently and exerts sound governance over firms.

Governance, in general terms, means the process of decision-making and the process by which decisions are implemented (or not implemented), involving multiple actors. Good governance is one which is accountable, transparent, responsive, equitable and inclusive, effective and efficient, participatory and which is consensus-oriented, and follows the rule of law. As per Organisation for Economic Cooperation and Development (OECD), Corporate Governance involves a set of relationships between a company's management, its board, its shareholders, and other stakeholders. Corporate Governance also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined. While good governance is essential for any entity, it has deeper significance for financial institutions. Financial institutions are central to economic activity and banks and a large part of the nonbanking financial system undertake credit intermediation. Failures of financial institutions would thus impede economic growth and would cause severe damage to the system. Economies take longer time to rebound from a financial crisis than business cycle recessions. Financial institutions operate on higher leverage. As per a study by the Bank for International Settlement (BIS) for the period 1995-2009, compared to non-financial institutions that had a leverage of about 3, banks operated at a leverage of 18.3 while non-bank financial firms had a leverage of 12.1. Higher leverage makes financial intermediaries more vulnerable to shocks. It is apparent that these financial institutions must be well governed for achieving financial stability. Financial institutions, especially banks, deal in people's savings, and the trust of customers forms the cornerstone of their existence. Any breach of trust leading to loss of confidence is bound to lead to a run, not just on a particular bank but on others too who are perceived to have weaknesses or even similar business models. Good governance ensures customers' and other stakeholders' trust in banks and nonbanking financial intermediaries.

Banking crises have crippled economies, destabilized governments, and intensified poverty. When bank insiders exploit the bank for their own purposes, this can increase the likelihood of bank failure and thereby curtail financing activity and economic development. This shows the importance of banks in nation-building activity. Banks are firms. They have shareholders, debt holders, boards of directors, competitors, etc. Banks are having same governance principal which other companies are having. Banks however have two distinct characteristics that inspire a separate analysis of the corporate governance of Banks. First, Banks are more opaque than nonbanking organizations. In banking, loan quality is not readily observable and can be hidden for a prolonged period also banks can change the risk composition of their assets more quickly and banks can easily hide problems by extending loans to clients that cannot service the previous debt obligation by evergreening the stressed assets. Second, the banks are heavily regulated. Because of the opacity of banks' assets and activity and because banks are a ready source of fiscal revenue, the government imposes several regulations on banks and government banks are the one who has to bear it more. Also due to advancement in the prudential norms related to safe banking operations, and the Basel accords, it has become necessary for the government to strictly regulate the banks.

1.1.1 Defining Good Governance

Good governance can be defined as the process of making and implementing decisions in a fair, transparent, and accountable manner. It involves setting policies and procedures that ensure that organizations are being run in the best interests of their stakeholders, including shareholders, employees, customers, and the wider community. Good governance also includes ensuring that there is adequate oversight and accountability in place to ensure that the organization is complying with legal and regulatory requirements.

1.2 Internal Control and Risk Management



Exhibit 1 Three line of Defense.

Internal control can be defined as the systems and processes that organizations use to manage and control their operations, mitigate risk, and ensure that they are complying with legal and regulatory requirements. Effective internal control helps to ensure that an organization's financial and non-financial resources are being used efficiently and effectively, that risks are being managed appropriately, and that the organization is complying with legal and regulatory requirements.

Effective internal control main objectives are that whether bank operations are effective and efficient, whether recorded transactions are accurate, whether financial reporting is reliable, whether risk management systems are effective and what is the present scenario of bank compliance in respect of banking law and regulation, internal policies, and internal procedures.

The structure of any control system will depend mostly on a bank's size, the complexity of its operations, and its risk profile. A small bank with a less structured and complex control system can be equally effective as a large bank with a sophisticated control mechanism.

On internal control, COSO framework is one of the important guidance notes which tries to summaries the control environment in all types of institutions.

1.2.1 COSO Internal Control-Integrated Framework

COSO is the committee comprising of five organisation which are the American accounting association, American Institute of Certified Public Accountants, Financial Executives International, Institute of Management Accountants and Institute of Internal Auditors. The COSO framework was first released in 1992 and are widely recognized internal control framework. It has been updated many times, but the fundamentals have not changed. COSO defined internal control as “Internal control is a process effected by an entity's board of directors, Management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting and compliance.” (“Guide to COSO Framework and Compliance — Reciprocity”)



Exhibit 2 COSO Internal control integrated framework.

The COSO framework divides the objective of internal control into three categories which are operations, reporting, and compliance. The operational objective of internal control measures means the achievement of performance goals, protection of the physical and financial assets of the organization from fraud, and faulty processes. Reporting objective of the Internal control framework includes both internal and external reporting, financial and nonfinancial reporting with accuracy and in a timely manner. Compliance objective is related to the various compliance required to do business as per the government guideline, laws, and regulatory requirements. As per the COSO internal control framework, every effective control system should have 5 components which are as follows.

- Control environment.
- Risk assessment.
- Control activities.
- Accounting, information, and communication systems.
- Self-assessment or monitoring.

The control environment is the set of standards, systems, structures, and processes which provide the environment for carrying out internal control within the organization. (“Control Environment Component - pda-usa.com”) The board of directors and senior manager at the top decide the tone of the control environment regarding the expected outcome and senior management reinforce the same at various levels. The control environment comprises the integrity and ethical values of the organization; the parameters enabling the board of directors to carry out its governance oversight responsibilities; the organizational structure and assignment of authority and responsibility; the process for attracting, developing, and retaining competent individuals; and the rigor around performance measures, incentives, and rewards to drive accountability for performance. The resulting control environment has a lasting impact on the internal control system.

Risk assessment is the identification, measurement, and analysis of risks, both internal and external, controllable, and uncontrollable, at individual business levels and for the bank. Management must assess all risks facing the bank because uncontrolled risk-taking can prevent the bank from reaching its objectives or can jeopardize its operations. Effective risk assessments help determine what the risks are, what controls are needed, and how they should be managed.

Control activities are the tasks and activities related to organization policy and procedures that help in achieving internal control objectives. These include activities such as authorizations and approvals, verifications, reconciliations, and business performance reviews. (“COSO Framework: What it is and How to Use it.”) These actions help the board and management to act towards ensuring to manage control risks that could prevent a bank from attaining its objectives.

Accounting, information, and communication systems capture and impart pertinent and timely information in a form that enables the board, management, and employees to carry out their responsibilities. (“Accounting, information, and communication systems capture and impart ...”) Accounting systems are the methods and records that identify, assemble, analyse, classify, record, and report a bank’s transactions. Information and communication systems enable all personnel to understand their roles in the control system, how their roles relate to others, and their accountability. Information systems produce reports on operations, finance, and compliance that enable management and the board to run the bank. Communication systems impart Internal Control Comptroller’s Handbook 8 information throughout the bank and to external parties such as regulators, examiners, shareholders, and customers.

Self-assessment or monitoring is the bank’s own oversight of the control system’s performance. Self-assessments are evaluations of departmental or operational controls by persons within the area. Ongoing monitoring should be part of the normal course of daily operations and activities. Internal and external audit functions, as part of the monitoring system, may provide independent assessments of the quality and effectiveness of a control system’s design and performance. All bank personnel should share responsibility for self-assessment or monitoring; everyone should understand his or her responsibility to report any breaches of the control system.

From these 5 components, COSO lists 17 principal that explicitly describe the element of an effective control framework and are as follows

Internal Control Component	Principles
Control environment	1. Demonstrates commitment to integrity and values 2. Demonstrates independence and exercises oversight responsibility 3. Establishes structure, authority, and responsibility 4. Demonstrates commitment to attracting, developing, and retaining competent staff 5. Enforces accountability
Risk assessment	6. Specifies suitable, specific objectives 7. Identifies and analyses risks 8. Assesses fraud risk 9. Identifies and analyses significant changes
Control activities	10. Selects and develops control activities that help mitigate risks 11. Selects and develops general controls over technology 12. Bases controls on thorough policies and procedures
Information and communication	13. Uses relevant, high-quality information 14. Communicates internally to support controls 15. Communicates externally
Monitoring	16. Conducts ongoing and/or separate evaluations 17. Evaluates and communicate deficiencies

Strong control cultures typically incorporate qualified personnel, effective risk identification and analysis, clear designation and appropriate separation of responsibilities, accurate and timely information flow, and established monitoring and follow-up processes.

1.3 Internal Audit

As per the Board of Directors of the Institute of Internal Auditors described the internal audit as: “Internal audit is an independent, material and consultancy activity, which adds value and improves the functioning of an organization. It helps the organization achieve its aims by means of a systematic, disciplined approach to evaluating and improving the effectiveness of risk management, control, and the management process.” As per the definition itself it is clear that the internal audit function plays a crucial role in the ongoing maintenance and assessment of a bank’s internal control framework, risk management activities, and governance systems and processes areas in which the supervisory authorities have a keen interest. Also, both internal auditors and supervisors use risk-based approaches to determine their respective work plans and actions. While internal auditors and supervisors each have a different mandate and are responsible for their own judgments and assessments, they may identify the same or similar risks related to the organization. (“Internal audit - notes - Basel Committee on Banking Supervision The ...”)

Although the need for objectivity and impartiality is of particular importance for the internal audit department in a banking institution, this does not exclude the possibility that this department, too, may contribute to

advisory and consultancy activity if the independence of analyses and evaluations is ensured. (“INTERNAL AUDIT IN BANKING ORGANISATIONS - Národná banka Slovenska”) Some banks have also introduced a system of evaluating their activities, which does not replace, but supplements the function of the bank’s internal audit. (“Effect Of Internal Audit On Financial Performance Of Commercial Banks ...”) This is a formal and documented process whereby management and employees analyse their activities and evaluate the effectiveness of the related internal control procedures. Internal audit has a number of aims and principles that are necessary to adhere to. It is the board of directors of the bank, however, which bears final responsibility that the bank’s management applies an appropriate and effective system of internal control, a system of evaluating banking activity risk and risks concerning bank capital, appropriate methods of monitoring compliance with laws, measures, and internal procedures. Likewise, the bank's management is responsible for drawing up procedures that identify, measure, monitor, and control the risks that the bank faces. The management must ensure an organizational structure that clearly defines powers and responsibilities. It is responsible for risk management, proposing suitable internal control mechanisms, and monitoring their adequacy and efficiency. Internal audit is a part of the repetitive monitoring of the internal control systems of the bank and its procedures. As such, it assists management and the board of directors in the effective performance of their responsibility as outlined above.

1.4 Use of Technology to Improve Governance and Internal Control

Technology can be used in a variety of ways to improve good governance. One key area where technology can be used is in the area of transparency. Organizations can use technology to make their decision-making processes more transparent by providing stakeholders with access to relevant information about their operations and decision-making processes. This can be achieved through the use of dashboards, reporting tools, and other data visualization tools that allow stakeholders to view the information in a more user-friendly and accessible manner.

Another area where technology can be used to improve good governance is in the area of compliance. Organizations can use technology to automate compliance processes, such as monitoring regulatory changes, tracking compliance requirements, and ensuring that the organization is complying with legal and regulatory requirements. This can be achieved through the use of compliance management systems that automate compliance-related tasks and provide real-time updates on compliance activities.

Technology can also be used in a variety of ways to improve internal control. One key area where technology can be used is in the area of risk management. Organizations can use technology to identify, assess, and mitigate risks by providing real-time data on potential risks and automating risk management processes. This can be achieved through the use of risk management software that can help organizations identify potential risks and provide real-time alerts and notifications when risks are identified.

Another area where technology can be used to improve internal control is in the area of financial management. Organizations can use technology to improve their financial management processes by automating financial reporting and analysis, reducing the risk of fraud and error, and improving financial transparency. This can be achieved through the use of financial management software that automates financial processes and provides real-time data on financial performance.

1.5 Research Problem

The purpose of this study is to explore the role of technology in improving good governance and internal control in organizations. The study aims to address the following research questions:

1. What is the current state of good governance and internal control in organizations?
2. What technologies are currently being used to improve good governance and internal control?
3. What are the benefits of using technology to improve good governance and internal control in organizations?
4. What is the risk to the adoption of technology for improving good governance and internal control in organizations?

By answering these research questions, the study seeks to provide insights into the potential for technology to improve good governance and internal control in organizations. The study also aims to identify best practices and recommendations for organizations seeking to improve their governance and internal control through the use of technology.

This study is important because good governance and strong internal control mechanisms are essential for organizations to operate effectively and efficiently. The use of technology has the potential to significantly enhance these mechanisms, but there is a need for a comprehensive understanding of the current state of technology adoption, as well as the benefits and barriers to its use. This study seeks to address this need by providing a detailed analysis of the use of technology for good governance and internal control in organizations.

1.6 Objective of Research

The aim of this study is to focus on

- Existing technologies deployed in the bank towards internal control and governance.
- Identify gaps in the existing internal control and governance in our bank.
- Available technologies in the market which can be used to fill the gaps in the existing systems and strengthen internal controls and good governance.

By answering these research questions, the study seeks to provide insights into the potential for technology to improve good governance and internal control in banks. The study will use a mixed-methods approach, including a survey and interviews, to gather data and analyze the use of technology for good governance and internal control in organizations.

II. LITERATURE REVIEW

2.1 “Promoting Good Governance through Internal Audit Function (IAF): The Nigerian Experience” by Taiwo Olufemi Asaolu, Samuel Adebayo Adedokum, James Unam Monday

This study discusses the importance of good governance and its effect in business, government, politics and the general public and how internal audit function plays an important role in this. This study assesses the effect of internal audit function on good governance in the public sector in Nigeria. This study has collected the primary data from selected people working in public sector as head of the internal audit, director of finance and supplies and head of local government administration. IAF was measured by independence of internal audit system, scope of work, professional competence, examination process, and management support, while quality of service, management of public resources measured good governance. The Data which was obtained during study was analysed using correlation analysis and multiple regression techniques. The results showed that the effectiveness of IAF in Nigerian public sector organisations was moderate since internal audit system in the public organisations was not absolutely independent and professional competence was limited due to the challenge of insufficient funds to successfully carry out its duties. Moreover, the study revealed that IAF had significant and positive effect on the quality of service delivery and management of resources in public organisations. The study concluded that internal Audit function is a veritable tool for promoting good governance in the Nigerian Public Sector.

2.2 “Internal Control Improvement for Creating Good Governance” by I Wayan Prasad Bharaditya, I Made Sukarsa, Putu Wira Buana

This study is focused on the cooperative society of Indonesia and their bad working condition due to poor governance. The study discusses the poor control in the cooperative society which has led to embezzlement of fund, poor loan service by loan account customers, poor collateral management and its impact on the financial system. In this study researcher has done a survey by administering a questionnaire to the target group. This study divided the critical point into 7 classes and targeted the cooperative society accordingly. This Study showed the importance of internal control improvement for creating the good governance.

2.3 “Auditors’ Usage of Computer-Assisted Audit Techniques (CAATs): Challenges and Opportunities” by Raed Jameel Jaber

This study is focused on the electronic auditing environment in companies, and to determine the main benefits and challenges of Computer Assisted Audit Techniques (CAATs) and to review the opinions on Generalized Audit Software (GAS). The study also sheds the light on the reality of electronic auditing in Kingdom of Bahrain. (“Auditors’ Usage of Computer-Assisted Audit Techniques (CAATs ...)”) The descriptive approach was used, where the previous studies were surveyed, discussed accurately, and then the results of the study were reached. "The results showed the benefits and challenges of evolving from traditional audit techniques to CAATs." (“Auditors' Usage of Computer-Assisted Audit Techniques”) This research provides more detailed

information about the use of GAS in the different sectors of companies. It also provides academic contribution not only in auditing area but also in information technology, especially in Bahrain. "At the end of the study, there are suggestions for future research, which may help to get a qualitative achievement in the use of electronic audit and CAATs in Bahrain." ("Auditors' Usage of Computer-Assisted Audit Techniques (CAATs ...")

2.4 "Internal Audit and Corporate Governance" by Radu Florea, Ramona Florea

Boards of directors from all kind of companies are charged with responsibility for the effectiveness of their organisations' internal control systems, in order to promoting effective corporate governance. Corporate governance is the system by which business corporations are directed and controlled. After the chute of Enron, some regulations, including an emphasis on anti-fraud and whistle blower provisions and the potential impact on stock prices, have compelled auditors to take a more active role in governance. One of the major governance issues brought to light by the bankruptcy of Enron was the conflict of interest involved with having financial officers of a company both manage and be equity holders of entities that conducted significant business transactions with Enron. The Institute of Internal Auditors present that regardless of the reporting relationship the organization chooses, there are key measures that will ensure that the reporting lines support and enable the effectiveness and independence of the internal audit function. This paper presents the concepts of Corporate Governance and Internal Audit through relationship between these, and the role of Code of Corporate Governance. Based on a research on the National Corporate Governance Codes among European Union countries, regarding the relationship between Internal Audit and Corporate Governance, there was identified three main categories of countries: countries in which Internal Audit is foreseen by Corporate Governance Code, countries in which Internal Audit is recommended by Corporate Governance Code and countries in which Internal Audit is not foreseen.

2.5 "Internal Audit and its Role in Corporate Governance" by Mahd Ali Al-Jabali, Osama Abdalmanam, Khalifeh N Ziadat

One main pillar for the success of corporate governance for any company or organization that is having this career, However, it should be noted that there are major activities of governance are the same activities are essential in this profession. In the sense that the two essential activities of the governance Crystallizes in the risk control and assurance regarding the existence of Regulatory Control, for that, the audit profession helps to control and manage risks in terms of diagnosis and identify risks on a regular basis. Ease the evaluation and risk assessment; Assessment of risk management processes Measuring, and monitoring performance, internal communications in order to take corrective action. As for the assurances of regulatory controls, it is according to the content and the concept of governance, the foundation is to ensure that regulatory controls are in force in any company has been developed to face the major risk of the institution. The management of the company or organization applies supervisory controls. While other participants in the governance (And here is the Internal Auditor) Playing a more role in Supervisory control or evaluation, Where can the Internal Auditor providing assurances about the supervisory controls, and that in terms of assessment of the procedural methods in senior management. Estimate the regulatory environment on regular basis. Choose examining the effectiveness of supervisory controls. Submissions report of Ratings on the management and audit committees in the company or organization, report should be submitted for Evaluations about the management and audit, And Committees in the company or organization. In the researcher, opinion it should not be overlooked the development that took place in the internal auditing standards, which support the effectiveness of corporate governance. Therefore, internal auditors should be fully prepared to audit the ongoing operations of the company and control systems of accounting, administrative, tactical operational performance in the company, (Ratliff&Reding, 2002, p5. (And showing up extent of compliance in terms of compliance with laws and regulations of the company, So it's a must (in the researcher opinion) internal auditor should possess the skills of analytical thinking and critical with the need for a full understanding of the threats and risks facing the company's activities, also with the necessity to adherence to the moral career, and the access to take advantage of technological development And knowledge in the performance of his work, In particular under the prevailing world knowledge economy, and the outcomes of all this will be access to the effectiveness unique governance institution in different fields level of local and international.

2.6 “Re-inventing Internal Controls in the Digital Age” by Mark Jensen, Andre Tan, Andreas deppeler, Joseph Alfred, Pauline Javani, Vinika Devasar Rao

Internal control concepts and principles, such as those in COSO’s Integrated Internal Control Framework, will continue to be applicable and relevant in the digital age. (“Internal Control Integrated Framework By Coso”) In fact, technology can make internal controls even more effective, efficient and pervasive. Even basic automation can improve internal controls by instilling discipline in organising and standardising processes. However, a process and its controls must be designed appropriately before automation is considered. Automating a poor process is counter-productive and may increase risk. Technology can also give rise to new risks that may not be adequately addressed by current internal control systems. Many organisations are already deploying or exploring emerging technologies for control tasks or processes, for example, AI for anomaly detection, or drone technology for inspections and aerial surveillance. In the future, we expect these technologies to be used more widely for control purposes. In the digital age, data governance and control culture will become more important as more controls become embedded in automated systems. Beyond this, a level of professional skepticism must remain to challenge the systems and be able to identify when the system could be wrong. The CFO and finance function plays a key role in both embedding a data-driven control culture and maintaining a skeptical mind-set. Continuous testing and monitoring of controls requires interdisciplinary teams and skill sets of audit specialists (for testing controls), business process owners (for overseeing their processes) and technical staff (for building the technology enabled control systems).

The key challenge that organisations must overcome arises not from technology, but from its adoption. Some people in the organisation may resist change due to fear of being replaced, others may not use the tools effectively due to lack of skills or training. A well thought through change programme, supported and driven from the top, is critical to transform control functions and prepare them for the future. Ultimately, organisations that embrace change will not just be able to manage risks more effectively but will experience significant benefits to their growth and bottom line.

III. RESEARCH DESIGN & METHODOLOGY

This chapter sets out a description of the research methodology. Research methodology provides details regarding the procedures to be used in conducting the study. Research methodology is a specific plan for studying research problems and constitutes the blueprint for the proposed data collection, measurement, and analysis of the data. Included in the methodology section are descriptions of the research design, the population, the sample and sampling techniques, and a description of instruments or tools used to collect data, the measurement of variables, and the techniques to be used in analysing the data.

3.1 Research Design

The research problem was studied by use of mixed method design. A mixed method design is characterized by the combination of qualitative and quantitative research components. A questionnaire was made to collect the primary data from people working in the audit department and a study on the challenges associated with internal control was done. Secondary data from different research articles and studies related to the subject was done.

3.2 Target Population

The study was to know the governance and internal control in banks and how technology can be used to improve the same. As the study was related to internal control so accordingly target population were bank employee who are working in the audit department were taken to understand the various gaps related to governance and internal control. For this, a questionnaire was made and responses were collected from the people working in the audit department to know the challenges related to this and find out whether any technology is there which can be used for the improvement of the same.

3.3 Data Collection

As the focus of this study was technology, along with collecting the primary data we studied the technologies which are presently being used across the industry and their applicability. We also tried to define the risk involved in these technologies.

IV. DATA ANALYSIS & RESULT

This chapter presents the research finding and result of the study done on the Good governance and Internal control through use of Technology

4.1 Primary Data Collection and Findings

As per our study, we conducted a primary study to collect the responses and challenges on the governance and internal control measures. The study used 11 questions based on internal control measures and collected responses from the people related to the management of internal control and governance.

4.2 Secondary study

The study was focused on the latest technologies which are used presently by organisations towards internal control and governance for which study focused on key technologies which are being used and the risk associated with them also studied.

4.2.1 Key Technology rewriting internal control and Risk associated with them.

Technology is the great enabler and modern and future banking environment is going to be driven by technology although focus on transformation is often prioritized on customers facing operations, but now organizations have realized that in order to have greater business resilience they must rewrite the internal control mechanism to be effective and accommodative for future disruption through the introduction of new technology. The core element of people, process, technology, and data are interconnected and interdependent and they thread through any activity within organisation. Addressing each of these within an organisation culture that supports innovation and creativity is important for adopting the utilising emerging technology.

For this, we studied the e GRC system (Enterprise Governance, Risk and Compliance system) which are there in the market and what benefit they bring to the organisation.

4.2.2 e-GRC(Enterprise wise Governance, Risk and Compliance system)

The global pandemic of 2020 challenged all organizations to adapt the way they do business and to rethink the role and goal of risk management. For firms to survive and thrive in the post-pandemic era, they'll need to master agility in how they win, serve, and retain customers and continue making risk-based decisions in the way they deliver on their brand promises, despite the crisis. For risk and compliance professionals, this requires ambidexterity in how they mitigate new and emerging risks as well as an understanding of the cascading effect these risks can trigger throughout the enterprise. E-GRC technologies automate the data, processes, and insights required to manage risk and compliance across the enterprise.

As the name suggests, GRC describes activities to help keep companies on track with their objectives in three main areas: governance, risk management, and compliance. Governance is the process of aligning all organizational activities (training, IT operations, etc.) with the organization's primary goals and objectives. Governance activities may include internal audits, assurance reports, compliance monitoring results, and more.

- ✓ Risk management: Risk management refers to a set of processes to identify, assess and mitigate threats to an organization. These threats include cybersecurity issues, commercial and financial risks, legal liabilities, natural disasters, and more. Risk management activities rely on internal audits and risk assessments to identify areas of uncertainty.
- ✓ Compliance: Compliance involves meeting a set of stated requirements. These requirements may be legally enforced by the law or regulator or might be enforced by the organization towards better risk management and internal control practice.it includes.
 1. Identifying relevant requirements
 2. Assessing the state of compliance across the organization
 3. Determining the potential costs and risks of non-compliance
- ✓ Audit: GRC system helps in automating the system and procedures which were done by hand. Due to this, it helps decrease the two important resources: expenditure and manhour. All these exercises make the audit less disruptive and less time-consuming because most of the things were already done.

These activities exist across various functions, including IT, HR, finance, legal, risk, compliance, the lines of business, the board, and the executive suite.

Most of the banks have some sort of GRC system in place but enterprise-wide focus is missing which is creating hurdles in the enterprise-wide governance, risk, and compliance environment. A few of them can be named:

- ✓ Siloed GRC business function: Most of the banks are using GRC function in silos which make them difficult to scale.
- ✓ Lack of enterprise-wide common data model: In the silos GRC approach system draw data from different master sources and did not share data with one another which creates data inconsistencies in overall enterprise-wide risk reporting, audit observation and business unit wise compliance position.
- ✓ Limited control over manual risk management processes: Due to scalability design and adoption challenge, banks have to manage many of its activity outside of GRC systems which delay the process workflow due to lack of common data flow.
- ✓ Manual reporting and siloed dashboard: Due to siloed approach enterprise-wide common data remains unavailable which makes second and third line of defense to be more reactive than proactive and due to which lot of risks remain unnoticed or are noticed at later date.

Along with these challenges e- GRC system brings a number of benefits which are as follows.

- 1.Stability: Establishing e-GRC gives resolution to immediate and long-term risk exposure while allowing for an agile and scalable control environment.
- 2.Optimization: Non-value-adding activities are eliminated, and value-adding activities are streamlined to reduce time and any undesirable variations. Replace manual preventative controls with automated detective controls, which increase efficiency and traceability.
- 3.Transparency: e-GRC allows the ability to view a more complete picture of the organization and processes, allowing owners to have access and control over necessary content to understand the business unit profile and applicable risks and challenges.
- 4.Reduced Cost: Due to automation of manual process and procedure there is a cost reduction which helps in higher ROI. There is also reduced costs in maintaining duplicated controls, tests, issues, actions, and reporting across multiple disciplines.
- 5.Consistency: Improved alignment of objectives with mission, vision, and value of the organization, resulting in better decision-making agility and confidence.

In Overall the e- GRC system is able to bring better Risk culture in the organisation with the reduced cost and better compliance and governance culture. Global e-GRC market is about 14.9 billion and is expected to grow by 27.1 billion by 2027 with a CAGR of 12.6%.

4.2.3 Cloud Computing and Cloud Storage

Cloud computing is not considered an emerging technology anymore, but it is important to consider this as its use is present globally. It is one of the fastest-growing businesses globally because it brings benefits and flexibility which is not possible for any organization to do on its own. All the organizations presently working, especially in data-intensive environments are using cloud technologies which include banks also. Many cloud providers have high standards of controls that can be passed on to their customers like control certifications and attestations of their technology control environment along with tools to help organizations deliver their internal control objectives. At present in India some of the banks are using private cloud (Sbi using Vmware) and some of the banks are using the services of cloud storage providers like AWS. Cloud services such as AWS provide assurance to their customers and stakeholders via attestation and certification such as SOC1,2,3(Control reports) and ISO 27001(Security Management Controls). Also, when any organization takes the services of AWS responsibility for security is shared which means AWS assumes responsibility for the security of the cloud while customers are responsible for security in cloud. With this kind of arrangement, organization duties are made simple as AWS takes on the responsibility for key infrastructure and physical components.

Risks with Cloud storage and cloud computing:

Data residency is one of the issues related to cloud storage. Some countries have stricter laws related to data residencies where cloud providers have to store data locally as per law. In India, as per law Indian banks are allowed to use cloud services of outside providers provided that they comply with legal and regulatory requirements.

4.2.4 Drones

Drones are unmanned flying objects which can be equipped with a ground-based controller and on board cameras. Data captured such as images and video can be sent back to the base for analysis. The benefit it gives is the speed of image taking and processing of images, real time monitoring and the ability to access remote locations within a fraction of cost and human capital involvement.

For Banks these services have very good applicability in big project loans, infrastructure projects, stock assessment of the mentioned industry. Using drones can help several control objectives:

- ✓ Reporting: Used to verify existence, valuation, and work in progress.
- ✓ Compliance: Providing a bird eye view of a site allows surveying to be done quickly to check compliance in fraction of cost and involvement of human capital.

There are many drone service providers in India whose services are acquired by many organisations and it is one of fastest growing industry in India.

Risk:

Drones can be subject to specific risk given their aerial nature. They have to adhere to the rules and regulation as per air traffic controller to avoid any kind of collision. Data privacy is also one of the concerns as these drone service provider gather volume of data which needs to be carefully addressed before taking services.

4.2.5 Robotic Process Automation

Robotic Process Automation (RPA) software is a powerful tool to perform manual, time-consuming, rules-based office tasks at shorter cycle times and lower costs than other automation solutions. RPA replicates end user activities, typically through a Graphical User Interface (GUI) that sits on top of other front-end and back-end applications.

Using RPA allows organizations to digitize expensive, error prone manual processes and internal controls. Every step in the process, every activity performed and all sources of data have a digital audit trail. By carefully planning control processes, a company can embed thresholds and guidelines into the automated processes, expediting testing and risk compliance.

This reduces the errors, improve quality, and compliance and customer satisfaction by less queries and reduced TAT. RPA is used by all line of defense starting from first line of defence of operations teams to testing control as a compliance function second line of defence to internal audit as the third line of defense.

Risk:

RPA process are relatively easy to use but there are several risks associated with its use

- ✓ RPA processes a volume of transaction data in a fraction of time so ensuring that it is programmed well and appropriately otherwise ill-programmed system can have a catastrophic effects.
- ✓ Which process to be automated needs to be carefully chosen so that risk can be managed within the usual IT control. Its downstream and upstream effect should be carefully studied before implementation. This may be overlooked when organization focus too much on the automating the processes.

4.2.6 Control Analytics and Artificial Intelligence

We typically distinguish three types of data analytics which are as follows

- ✓ Descriptive Analytics summaries and visualise what happened.
- ✓ Predictive analytics anticipate what will happen.
- ✓ Prescriptive analytics provides recommendations on what to do.

Many organizations are combining data analytics with automation to help monitor their business. With the data of transactions captured becoming the norm through Enterprise Resource Planning systems, real-time or periodic monitoring can be used as preventive and detective controls to avert risks. Richer sources of data and Big Data technologies are allowing more sophisticated techniques, moving from analyzing past performance towards predicting future risks. AI systems enable predictive methods for analytics and aim to derive insights from data and propose the best actions to take in order to achieve a given goal. They can learn to adapt their behavior through analyzing the effect on the environment based on previous actions Organizations are using AI systems to perform cognitive functions (based on perception, reasoning, learning, and problem solving) and

to assist and augment human decision-making. In recent years, most of the advances in AI have come from the field of machine learning, in particular deep learning, and reinforcement learning.

The banking industry is also using the technology in a big way especially in fraud detection as it requires continuous monitoring and rule-based system and provision of continuous learning in which these technologies are efficient.

Risk:

One key risk is the black box nature of AI as it is not possible to know how the system has learned and whether an organization will allow any computer to take decisions and control on its own, which is clearly not visible to humans as how the machine has reached to its decision.

4.2.7 Augmented Reality (AR) and Virtual Reality(VR)

AR bridges the digital and physical worlds, providing a digital overlay to the real world. VR is a fully computer-rendered three-dimensional immersive experience.

4.2.8 Internet of Things (IoT)

It is a network of physical objects embedded with sensors, software, connectivity, and computing capability to collect, exchange and act on data. Placing sensors on “Things” can help to collect data about them and their environment. More connected devices mean more data to analyze, and this has provided commercial benefits in a range of industries. Examples include predictive maintenance in the transport industry or precision farming techniques in agribusiness, where data on soil and weather forecasts can help distribute water for irrigation precisely.

However, there are risks associated with connected devices. Most devices are simple sensors without strong security mechanisms in place. Hacking of connected devices is becoming a reality. Vendor support may be lacking or unstable, especially if vendors operate in a niche area.

4.2.9 Optical Character Recognition (OCR) and Natural Language Processing (NLP)

Optical Character Recognition (OCR) is the process that converts an image of text into a machine-readable text format. Most business workflows involve receiving information from Paper forms, invoices, scanned legal documents, and printed contracts are all part of business processes. These large volumes of paperwork take a lot of time and space to store and manage. Though paperless document management is the way to go, scanning the document into an image creates challenges. The process requires manual intervention and can be tedious and slow.

Moreover, digitizing this document content creates image files with the text hidden within it. Text in images cannot be processed by word processing software in the same way as text documents. OCR technology solves the problem by converting text images into text data that can be analyzed by other business software. You can then use the data to conduct analytics, streamline operations, automate processes, and improve productivity.

Natural Language Processing (NLP) is a subfield of artificial intelligence (AI). It helps machines process and understand the human language so that they can automatically perform repetitive tasks. One of the main reasons natural language processing is so critical to businesses is that it can be used to analyze large volumes of text data. All this business data contains a wealth of valuable insights, and NLP can quickly help businesses discover what those insights are. It does this by helping machines make sense of human language in a faster, more accurate, and more consistent way than human agents.

V. DISCUSSION, SUMMARY & RECOMMENDATION

This chapter presents a discussion of the research findings along with the conclusion and recommendation of the research findings.

5.1 Discussion

In the modern financial system, Governance and internal control measures have become very important. We have a lot of examples of banks failing due to poor governance and internal control measure due to which risks were not understood and managed properly which cumulated in the failure of the organization. In this study, we have tried to study the governance and internal control structure in an organization and simultaneously we have tried to figure out the gap in this area by studying the responses collected from primary data collection. The purpose of the study was to find the existing gaps which are there and try to find out the technology which can be helpful in addressing these gaps. Along with collecting responses from the primary study we also collected information related to the technologies which are under implementation in various organisations towards GRC(Governance, Risk, and Compliance) and how they are going to address the gaps which can work toward better internal control. Also, the technologies which are used to address the internal control measure, have what kind of risk is associated with them and how these risks also can be addressed by careful planning of the same.

5.2 Summary of Finding

This study was focused on the use of technology towards the improvement of governance and internal control measures in organisations. In this study we have studied the operation of bank and used the opportunity to find out the gaps in present internal control measures which are in practice. For this purpose we have used primary research to study the same. Our target population were internal auditors which are the ones who have to audit different branches and controlling offices to find out the gaps which are present and give independent assurance to management towards effectiveness of internal control mechanism in banks.

Our primary study was done through the use of a questionnaire that was administered to people working in internal control and governance. Their responses were studied to find out the deficiencies in internal control and governance structure.

We had also done secondary study on the subject. This study focused on the present development in the field of internal control on the technology front and how organizations are rewriting internal control measures in the digital era. In the present scenario where technology is rapidly changing so does banks challenge to enforce internal control, also due to digitization lot of processes are being digitised but any residual risk is there which has remained unmapped. These questions were tried to be answered by doing the study on the latest technologies which are under implementation in various organizations.

5.3 Recommendation

Based on our study we have come to the conclusion that there are few areas where gaps are there and which can be filled by mix of technology and carefully planned processes which are as follows:

1. Digitisation of Manual processes: In day-to-day banking, there are a lot of processes that are manual in nature. Even these manual records can be digitized. AI Technology like Optical character recognition (OCR) is used for digitizing manual records and natural language processing (NLP) for understanding the context of language within a document.

2. Document digitisation and Document Management system: One of the areas of discrepancy comes in documentation errors which are very critical in nature and can put compliance risk and legal risk. There are two way of doing documentation first is through remote process automation and second is manual system. Manual documentation can be converted to digital mode through OCR and NLP can easily study and check. Also, one of error prone areas in documentation is stamp duty which differs from state to state. Through document management system full set of digitised documents can be easily stored on cloud storage for checking.

3. Offsite Document Storage System: After digitization of loan documents and related papers the document can be easily stored at any offsite location for better preservation. There are a number of service providers who are specialised in doing this and preserving the same for the required duration and their services include pickup and drop facility.

4.E- GRC system: Enterprise Governance, Risk, and Compliance (e-GRC) is a framework that helps banks to manage their operations in a more efficient and effective manner. In recent years, e-GRC has become a critical tool for banks, especially after the financial crisis of 2008.

e-GRC combines three key functions: governance, risk management, and compliance. Governance refers to the set of rules and processes that guide how a bank operates. Risk management refers to the identification, assessment, and management of risks that the bank may face. Compliance refers to the adherence to legal and regulatory requirements. One of the key benefits of e-GRC is that it helps banks to identify and manage risks more effectively. This is achieved through the use of risk assessments, which involve identifying potential risks and assessing their likelihood and impact. Another benefit of e-GRC is that it helps banks to ensure compliance with legal and regulatory requirements. Compliance requirements are constantly evolving, and e-GRC can help banks stay up to date with these changes. e-GRC also helps banks to monitor their compliance with these requirements and take corrective actions when necessary.

Finally, e-GRC can help banks to improve their overall efficiency and effectiveness. By streamlining processes and reducing duplication of efforts, e-GRC can help banks to achieve their goals more efficiently. e-GRC can also help to reduce costs by identifying and eliminating unnecessary or redundant activities.

Application: e-GRC is used in whole enterprise and main purpose of these system is to break silo approach of risk management. It help in creating enterprise-wise common data model. It helps organisation to have better control over risk management practices which used to be missing in manual and subjective control systems. It also helps a common enterprise-wide common reporting and information dashboard.

Technology used: Cloud based e-GRC, Optical character recognition (OCR), Natural language processing (NLP), Remote process automation (RPA).

Benefit: e-GRC has number of benefits which are as follows

- **Operational Risk Management:** With enterprise-wide data aggregation it is helpful in Basel operational risk framework reporting, continuous monitoring of KRIs across the enterprise, and compilation of loss and near miss events.
- **Policy and compliance:** Information security governance, finding and remediation workflows, policy exception.
- **Regulatory compliance**
- **Internal audit**
- **Vendor risk management**

e- GRC systems can be very helpful for organisation's in developing a Risk culture for better risk management and compliance management if rolled out perfectly and after taking all stakeholders in confidence otherwise, its intended benefit will not be realized.

5.4 Limitation

This study is primarily focused on the use of technology in governance and internal control measures and how it can be improved through the use of technology. Every technology has its advantages and risk also associated. It depends on the organization how they use these technologies for better output as the implementation of these technologies is more critical. Even a less sophisticated organization can get better results with careful planning of processes every organization has a different view on the use of technologies and the integration level they are seeking to harness the output.

5.5 Suggestion for further research

The field of finance is very dynamic and so does the risk faced by banks. This is the main reason behind the organization adopting the latest technology for better control and governance. Any study on the capability and capacity of e-GRC system will be good for further research as there is very less amount of research work is found on the subject.

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