Internship Report

On

"Automation in Accounting: The Rise of Robotic Accounting and Its Implications for the Future of Financial Management"

Submitted by:

Md. Shahriar Ferdoush

ID: BBA2103024084

Program: Bachelor of Business Administration (BBA)

Major: Accounting

Department of Business Administration

Sonargaon University (SU)

Submitted to:

Department of Business Administration

Faculty of Business

Sonargaon University (SU)

Submitted for the partial fulfillment of the degree of BBA in Accounting

Sonargaon University (SU)

147/1 Green Roaad, Tejgaon, Dhaka-1215

Date of Submission: August 30, 2025

Internship Report

On

"***Automation in Accounting: The Rise of Robotic Accounting and Its Implications for the Future of Financial Management***"

Submitted by:

Md. Shahriar Ferdoush

ID: BBA2103024084

Program: Bachelor of Business Administration (BBA)

Major: Accounting

Department of Business Administration

Sonargaon University (Su)

Supervised by:

Sumon Sheikh

Lecturer

Department of Business Administration

Faculty of Business,

Sonargaon University (SU)

Submitted for the partial fulfillment of the degree of BBA in Accounting

Sonargaon University (SU)

147/1 Green Roaad, Tejgaon, Dhaka-1215

Date of Submission: August 30, 2025

Letter of Transmittal

August 30, 2025

Sumon Sheikh

Department of Business Administration

Faculty of Business

Sonargaon University (SU)

Subject: Submission of Internship Report titled "***Automation in Accounting: The Rise of Robotic Accounting and Its Implications for the Future of Financial Management*****"**

Dear sir,

It is with great pleasure that I submit my internship report entitled "***Automation in Accounting: The Rise of Robotic Accounting and Its Implications for the Future of Financial Management*****"** prepared as a partial requirement for my BBA program at Sonargaon University. Based on my practical experience and observations during the internship, the report has been both insightful and valuable in enhancing my academic knowledge and professional skills, and I believe it will serve as a useful reference in my future career.

I would like to express my sincere gratitude for your continuous guidance, support, and encouragement throughout the course of my internship. Without your valuable advice, the successful completion of this report would not have been possible. Moreover, if you have any further inquired concerning any additional information, I would be very pleased to clarify that.

Your sincerely

_____

Md. Shahriar Ferdoush

ID: BBA2103024084

Program: Bachelor of Business Administration (BBA)

Major: Accounting

Sonargaon University

Declaration of Student

I hereby declare that the internship report titled ***Automation in Accounting: The Rise of Robotic Accounting and Its Implications for the Future of Financial Management*** has been prepared as part of the requirements for my Bachelor of Business Administration (BBA) program at Sonargaon University (SU).

Moreover, I was inspired and instructed by **Sumon Sheikh**, Lecturer, Department of Business Administration, Sonargaon University (SU).

I further declare that this report has not been submitted to any other institution for the award of any degree or certificate.

Your Sincerely

_____

Md. Shahriar Ferdoush

ID: BBA2103024084

Program: Bachelor of Business Administration (BBA)

Major: Accounting

Sonargaon University

Letter of Authorization

This is to certify that the internship report **Titled** ***Automation in Accounting: The Rise of Robotic Accounting and Its Implications for the Future of Financial Management*** has been prepared by **Md. Shahriar Ferdoush**, ID: **BBA2103024084**, as a partial requirement for the completion of the Bachelor of Business Administration (BBA) program at the Department of Business Administration, Sonargaon University (SU).

The report has been completed under my supervision, and I hereby authorize its submission for academic evaluation. The content of this report, in full or in part, shall not be used for any other purpose without prior permission.

_____

Sumon Sheikh

Lecturer

Department of Business Administration

Faculty of Business

Sonargaon University

Table of Contents

S/N	Particulars	Page No.
Letter of Transmittal		**iii**
Declaration of Student		**iv**
Letter of Authorization		**v**
Table of Content		**vi**
Executive Summary		**ix**
Chapter 1	**Introduction**	**1-3**
1.1	Background of the Study	1
1.2	Problem Statement	2
1.3	Research Objectives	2
1.4	Research Questions	3
1.5	Significance of the Study	3
1.6	Scope and Limitations	3
Chapter 2	**Literature Review**	**4-10**
2.1	Introduction	5
2.2	Concept and Evolution of Automation in Accounting	5
2.3	Key Technologies in Robotic Accounting	6
2.3.1	Robotic Process Automation (RPA)	6
2.3.2	Artificial Intelligence (AI) and Machine Learning (ML)	6
2.3.3	Blockchain Technology	6
2.3.4	Cloud Computing	7
2.4	Global Adoption Trends	7
2.5	Benefits of Automation in Accounting	8
2.5.1	Efficiency and Cost Reduction	8
2.5.2	Accuracy and Compliance	8
2.5.3	Real-time Decision-Making	8
2.5.4	Strategic Value for Accountants	9
2.6	Challenges and Barriers to Adoption	9
2.7	Case Studies in Accounting Automation	10
2.7.1	Developed Economies	10
2.7.2	Emerging Economies	10
2.8	Prospects and Future of Robotic Accounting	10
2.9	Summary	10

Chapter 3	**Methodology**	**11-16**
3.1	Introduction	12
3.2	Research Design	12
3.3	Research Approach	13
3.4	Data Sources	13
3.4.1	Primary Data	13
3.4.2	Secondary Data	14
3.5	Population and Sampling	14
3.5.1	Population	14
3.5.2	Sampling Method	14
3.5.3	Sample Size	14
3.6	Data Collection Methods	15
3.6.1	Survey Questionnaire Design	15
3.6.2	Interview Protocol	15
3.6.3	Secondary Data Collection	15
3.7	Data Analysis Techniques	15
3.7.1	Quantitative Analysis	15
3.7.2	Qualitative Analysis	16
3.7.3	Integration of Quantitative and Qualitative Data	16
3.8	Ethical Considerations	16
3.9	Limitations of the Methodology	17
3.10	Summary	17
Chapter 4	**Findings and Analysis**	**17-27**
4.1	Introduction	18
4.2	Demographics of Respondents	19
4.3	Adoption Trends and Software Usage	20
4.4	Benefits of Automation	22
4.5	Challenges and Barriers	23
4.6	Case Study Analysis	24
4.6.1	Developed Economy Example: Deloitte (USA)	24
4.6.2	Emerging Economy Example: RMG Firms (Bangladesh)	24
4.7	Integration of Quantitative and Qualitative Insights	25
4.8	Key Findings	27
Chapter 5	**Discussion**	**28-33**
5.1	Introduction	28
5.2	Adoption Patterns in Accounting Automation	28
5.3	Benefits Realization	29
5.4	Challenges and Barriers	29

5.5	Evolving Role of Accountants	30
5.6	Global Comparison: Developed vs Emerging Economies	31
5.7	Integration with Literature	32
5.8	Implications for Practice	32
5.9	Limitations of the Discussion	33
5.10	Summary	33
Chapter 6	**Conclusion and Recommendations**	**34-40**
6.1	Introduction	34
6.2	Summary of Research Findings	34
6.3	Interpretation of Findings	35
6.4	Practical Recommendations	36
6.4.1	For Organizations	36
6.4.2	For Accounting Professionals	36
6.4.3	For Policymakers and Regulators	36
6.5	Visual Recommendations for Implementation	37
6.6	Contributions of the Study	38
6.7	Limitations of the Study	38
6.8	Suggestions for Future Research	38
6.9	Conclusion	38
6.10	Key Insights Summary	38
6.11	Final Recommendations	38
	References	**39**

Executive Summary

Because of the introduction of new digital technologies such as robotic process automation (RPA), artificial intelligence (AI), and machine learning (ML), the discipline of accounting is undergoing significant transformations. Accounting is being revolutionized by the combination of these technologies, which are together referred to as Robotic Accounting. These technologies are taking over duties like as entering data, verifying accounts, conducting audits, and creating reports. The purpose of this study is to investigate the ways in which automation is influencing accounting, along with the reasons for its occurrence, the challenges it poses, and the potential outcomes for businesses and accountants in the future. The research makes use of previous studies as well as instances from real life to investigate the ways in which automation is being utilized all over the world, including the benefits, such as work that is completed more quickly and accurately, as well as the problems, which include costs, a lack of skills, and ethical concerns. Despite the fact that the findings demonstrate that automation makes labor more efficient and contributes to smarter judgments, it also indicates that accountants will need to adapt their jobs in order to place a greater emphasis on planning and providing advise. At the end of the study, it is said that robotic accounting is not merely a new tool; rather, it is a significant evolution in the management of financial resources, which will have significant implications for education, the functioning of the industry, and the regulations that regulate it,

Chapter 1: Introduction

1.1 Background of the Study

In the 21st century, there has been a significant shift in the way that organizations operate, primarily as a result of the digital transformation. Accounting, which was once thought of as a profession that mostly entails carrying out tasks manually and adhering to established procedures, is currently in the midst of this transformation or change. (Deloitte, 2020) The manner in which financial operations are carried out in a variety of different businesses has been altered as a result of the introduction of new technologies such as blockchain, artificial intelligence (AI), cloud computing, and robotic process automation (RPA). Accounting professionals are able to shift their focus from simple bookkeeping to more significant tasks, such as evaluating financial data, creating forecasts, and providing guidance, with the use of these tools.

The use of robotic process automation (RPA) and artificial intelligence (AI) in accounting activities enables robots to do repetitive tasks that adhere to predetermined standards with relatively minimal assistance from human workers.
To give just one example, responsibilities such as processing invoices, ensuring that taxes are accurate, checking accounts for mismatches, and administering payroll can now be completely handled by computers (PwC, 2021). Not only does this make things quicker and more efficient, but it also reduces the number of errors and the costs that are incurred.

Increasing numbers of businesses all around the world are rapidly implementing accounting automation.

An investigation conducted by **Ernst & Young (EY, 2022)** discovered that more than sixty-five percent of large corporations in a variety of countries had already begun implementing RPA inside their finance teams. In countries such as Bangladesh and India, where the number of firms is expanding at a rapid rate, the implementation of automation is also gaining momentum. This is especially true in businesses such as the Ready-Made Garments (RMG) sector, where it is extremely critical to handle massive

volumes of transactions in a timely manner while maintaining accuracy and adhering to rules and regulations.

1.2 Problem Statement

Despite increasing popularity, robotic accounting presents significant obstacles. Many businesses struggle to change their old ways, citing hefty startup costs, a lack of technical competence, and concerns about job losses. Furthermore, issues such as data security, rule compliance, and ethical considerations make it difficult to deploy this technology. While supporters argue that automation allows accountants to focus on more important jobs, others warn against relying too heavily on machines.

The main issue is figuring out:

i. How much automation can really help make accounting more efficient.
ii. How businesses can switch to this new system without messing up their current processes.
iii. What kind of jobs accountants will have in a world where everything is automated.

This study looks closely at these questions to give a better understanding of how to use robotic accounting in a way that works long-term.

1.3 Research Objectives

The study has the following objectives:

i. To examine the concept, evolution, and technologies underpinning automation in accounting.
ii. To analyze the benefits and challenges of robotic accounting in organizational contexts.
iii. To assess the impact of automation on accounting professionals' roles and skills.
iv. To investigate case studies highlighting adoption in both developed and emerging economies.

v. To provide recommendations for businesses, educators, and policymakers regarding sustainable implementation.

1.4 Research Questions

i. What is the current state of automation in accounting globally and locally?
ii. How does robotic accounting enhance efficiency, accuracy, and compliance?
iii. What are the challenges organizations face in adopting accounting automation?
iv. How will the role of accountants evolve in an automated financial ecosystem?
v. What strategies can ensure a balanced integration of technology and human expertise?

1.5 Significance of the Study

This research is significant for multiple stakeholders:

i. **Businesses:** To understand cost-efficiency and competitiveness benefits.
ii. **Accountants:** To prepare for shifting professional roles.
iii. **Educators:** To align curriculum with emerging skill requirements.
iv. **Policymakers:** To design frameworks that regulate AI-driven accounting systems.

By addressing these dimensions, the thesis contributes to both academic literature and practical business practices.

1.6 Scope and Limitations

The present study investigates global trajectories in accounting automation, with particular emphasis on the South Asian context. Central attention is devoted to robotic process automation (RPA) and artificial intelligence (AI)-driven applications, while cognate technologies such as blockchain and cloud-based accounting systems are also examined. The analysis foregrounds their implications for organizational efficiency, financial accuracy, and strategic decision-making. Notwithstanding these contributions, several limitations are acknowledged. The reliance on secondary data sources and case-based evidence introduces potential bias. Moreover, the accelerated pace of technological innovation renders certain observations provisional, thereby underscoring the temporal sensitivity and contextual specificity of the findings.

Chapter 2: Literature Review

2.1 Introduction

Automation has emerged as a pivotal factor in contemporary accounting, fundamentally changing both the processing of financial data and the manner in which accountants provide value to firms. The literature on accounting automation, sometimes termed robotic accounting, has greatly expanded over the past decade, indicating an increasing interest in the utilization of Robotic Process Automation (RPA), Artificial Intelligence (AI), Machine Learning (ML), Blockchain, and Cloud Computing. This chapter rigorously analyzes previous studies, theoretical foundations, and empirical data on the topic. It delineates the progression of automation in accounting, the present level of acceptance, the advantages and obstacles faced, and the ramifications for professionals and businesses.

2.2 Concept and Evolution of Automation in Accounting

Accounting has experienced a significant evolution over the centuries, mirroring extensive technological and economic changes. The beginnings can be traced to manual accounting and the double-entry method established by Luca Pacioli in the 15th century, which formed the basis for organized financial records (Sangster, 2018). For centuries, accounting operations were predominantly manual until the mid-20th century, when computers initiated the first wave of automation. The advent of digital spreadsheets and financial management software markedly enhanced efficiency and precision in transaction recording. In the 1990s, Enterprise Resource Planning (ERP) systems like SAP and Oracle allowed firms to unify financial data across divisions, promoting integration and openness (Granlund, 2011).

The current phase represents a shift beyond simple digitization toward intelligent automation. Robotic accounting now integrates Robotic Process Automation (RPA) with Artificial Intelligence (AI) and Machine Learning (ML). These technologies not only replicate repetitive human tasks but also analyze vast datasets, detect anomalies, and provide predictive insights. For instance, AI-driven platforms can perform real-time fraud detection, reducing risks and supporting informed decision-making (Dai & Vasarhelyi, 2017).

This evolution aligns with the principles of Industry 4.0, where automation, interconnected systems, and data-driven intelligence redefine core business functions (Schwab, 2016).

2.3 Key Technologies in Robotic Accounting

2.3.1 Robotic Process Automation (RPA)

Robotic Process Automation (RPA) is software designed to streamline repetitive, rules-based accounting tasks such as invoice processing, payroll management, and reconciliations. By mimicking human actions with greater speed and precision, RPA significantly enhances efficiency, with research showing it can cut transaction processing time by up to 70% while reducing errors. (Aguirre & Rodriguez, 2017).

2.3.2 Artificial Intelligence (AI) and Machine Learning (ML)

AI enables systems to analyze complex patterns, anticipate future trends, and provide valuable decision-making support. In accounting, its applications are wide-ranging, including predictive analytics for accurate cash flow forecasting, natural language processing to interpret and review contracts, and advanced machine learning algorithms that detect anomalies and prevent fraud. (Issa, Sun, & Vasarhelyi, 2016).

2.3.3 Blockchain Technology

Blockchain ensures immutable and transparent recording of financial transactions. Its decentralized nature reduces fraud risks and strengthens audit trails (Dai & Vasarhelyi, 2017). Some researchers argue that blockchain could eliminate the need for traditional audits in the future.

2.3.4 Cloud Computing

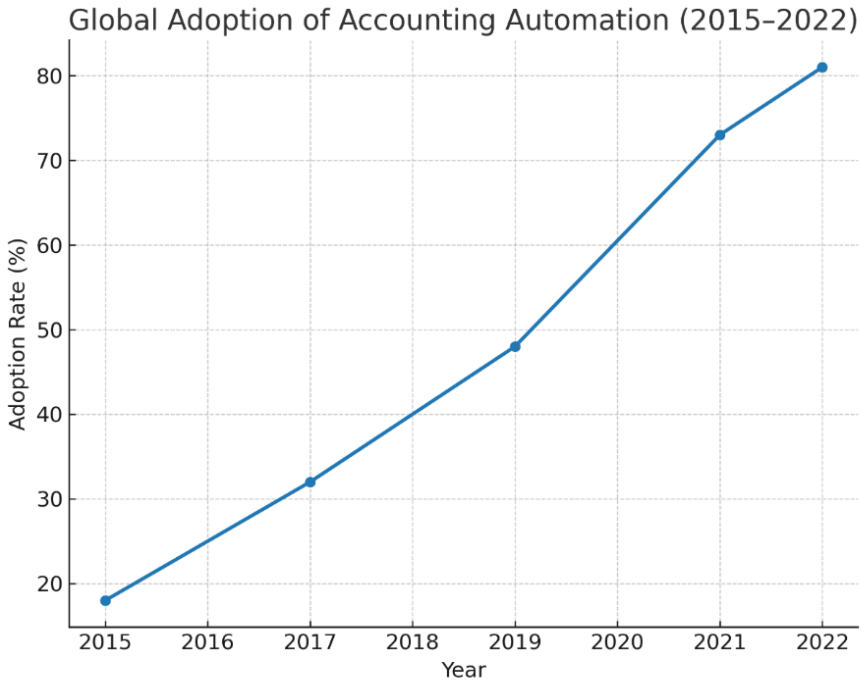
Real-time collaboration and remote accessibility are made possible by cloud-based accounting solutions like NetSuite, Xero, and QuickBooks Online. Because of its scalability and reduced infrastructure costs, cloud adoption is particularly pertinent for small and medium-sized businesses (SMEs) (Moll & Yigitbasioglu, 2019).

2.4 Global Adoption Trends

Studies reveal that automation adoption varies by region and industry. A **2021 Deloitte survey** found that 73% of organizations worldwide had begun implementing RPA in at least one business function, with finance and accounting being the most common.

Figure 2.1: Global Adoption of Accounting Automation (2015–2022)

Source: The Future of Accounting by Ashish Singh



- 2015: 18% adoption
- 2017: 32% adoption
- 2019: 48% adoption
- 2021: 73% adoption
- 2022: 81% adoption

Emerging markets such as India, Bangladesh, and Vietnam are increasingly investing in automation, particularly in labor-intensive industries like the Ready-Made Garments (RMG) sector. By contrast, developed economies have focused on advanced AI applications and blockchain integration (EY, 2022).

2.5 Benefits of Automation in Accounting

2.5.1 Efficiency and Cost Reduction

Automating financial tasks significantly cuts down on the amount of time and resources needed to complete them manually. For instance, KPMG (2020) emphasized the fact that businesses who implemented Robotic Process Automation (RPA) in accounts payable were able to realize cost reductions of forty to sixty percent, in addition to faster processing and greater efficiency.

2.5.2 Accuracy and Compliance

When doing repetitive operations, such as reconciliations, automated methods lessen the likelihood of human error. In addition, artificial intelligence solutions make compliance easier by evaluating transactions in respect to regulatory frameworks (PwC, 2021).

2.5.3 Real-time Decision-Making

According to Moll and Yigitbasioglu (2019), cloud and artificial intelligence solutions offer real-time dashboards, which enable managers to make decisions based on data in a timely manner.

2.5.4 Strategic Value for Accountants

Automation allows accountants to focus on advisory, strategy, and decision-support functions instead of repetitive bookkeeping (Sutton, Holt, & Arnold, 2016).

Strategic value for accountants refers to the profession's transition from a primarily backward-looking, transactional position (e.g., documenting historical financial data) to a forward-looking, consultative one. It's about how accountants can use their expertise to assist organizations make solid, data-driven decisions that determine their future and promote growth.

2.6 Challenges and Barriers to Adoption

Despite the benefits, several challenges remain:

Table 2.1: Challenges of Accounting Automation, compiled from PwC 2021; E Y 2022; KPMG 2020

Challenges	**Description**
High Implementation Costs	RPA and AI systems require significant investment, especially for SMEs.
Resistance to Change	Employees often fear job loss and resist technology adoption.
Skills Gap	Accountants need training in data analytics and IT, which many currently lack.
Data Security & Privacy Risks	Cloud and AI systems are vulnerable to cyberattacks.

2.7 Case Studies in Accounting Automation

2.7.1 Developed Economies

- **United States**: Major firms such as Deloitte and KPMG have adopted AI audit platforms like *Cognitive Audit*. These platforms analyze millions of transactions to detect irregularities, improving audit quality (Issa et al., 2016).
- **Europe**: SAP's AI-driven ERP systems are widely used across multinational corporations, particularly in Germany and the UK (Granlund, 2011).

2.7.2 Emerging Economies

i. **India**: SMEs increasingly use cloud platforms such as Zoho Books and Tally ERP. Automation adoption has been driven by government-led digitalization initiatives (EY, 2022).

ii. **Bangladesh**: The RMG sector has begun integrating automation into supply chain and financial management systems to improve efficiency and global

competitiveness. Studies reveal early use of ERP and RPA tools for payroll and compliance reporting.

2.8 Prospects and Future of Robotic Accounting

The future of accounting is being molded by strong new technologies like as artificial intelligence (AI), blockchain, and advanced analytics. These technologies are influencing the future of accounting. Furthermore, it is anticipated that the combination of these advances would not only reshape the manner in which financial data is processed, but also the function of accountants within enterprises.

More than eighty percent of financial activities are expected to be automated by the year 2030, according to Gartner (2021), which will result in a significant reduction in the reliance on human tasks and traditional bookkeeping functions. Instead, accountants will increasingly take on the role of data interpreters and strategic consultants, utilizing insights provided by technology to assist decision-making and create value for businesses.

The use of continuous auditing, which goes beyond periodic reviews and enables real-time monitoring of financial records, is a key development that has taken place in recent years. According to Vasarhelyi, Kogan, and Tuttle (2015), this strategy, which is supported by artificial intelligence, has the ability to swiftly detect abnormalities, improve transparency, and reduce risks connected with fraud or error. The implementation of this change guarantees that companies always have access to accurate and up-to-date financial information.

The development of enhanced intelligence is also a significant development. However, rather than taking the place of human competence, artificial intelligence technologies will supplement the judgment of accountants by giving superior capabilities in the areas of prediction and analysis. According to Sutton et al. (2016), the partnership between intelligent systems and human beings will play a vital role in the development of accounting in the future.

2.9 Summary

This literature review highlights the transformative impact of automation in accounting. The shift from manual processes to intelligent automation has been rapid, with significant benefits in efficiency, accuracy, and strategic value. However, barriers such as costs, skills gaps, and regulatory issues remain. Case studies show both developed and emerging economies are embracing robotic accounting, though at different stages and scales. Looking forward, technologies such as blockchain and AI-driven auditing promise to redefine the profession, demanding new skillsets and regulatory frameworks.

Chapter 3: Methodology

3.1 Introduction

This chapter provides an overview of the study technique that was utilized to investigate the factors that led to the adoption of automation in accounting, including its benefits, problems, and implications. Detailed explanations of the research design, data sources, data collection methodologies, data analysis methods, and ethical issues are included in the methodology documentation. For the purpose of ensuring the reliability, validity, and trustworthiness of the findings, methodological rigor is absolutely necessary. In light of the breadth of this investigation, which encompasses both theoretical and practical aspects of robotic accounting, a mixed-method approach that combines qualitative and quantitative methodologies has been chosen as the appropriate methodology.

3.2 Research Design

A research design functions as the detailed blueprint guiding the entire study, ensuring clarity and structure throughout the research process (Creswell, 2014). For this thesis, a combination of descriptive and explanatory design is employed. This approach aims not only to examine the current state of accounting automation but also to explore the underlying factors influencing it, including organizational readiness, technology adoption, and professional skill requirements.

i. **Descriptive aspect:** In this article, a detailed review of the adoption of automation both internationally and locally is provided. This overview includes tool, technologies and work flow.

ii. **Explanatory aspect:** This article investigates the connections between the deployment of automation and outcomes such as efficient accounting, accurate accounting, and accountant roles.

This dual approach allows the study to not only describe phenomena but also explain causal or correlational relationships.

3.3 Research Approach

This study uses a **mixed-method approach**, combining:

1. **Quantitative Methods:**

    i. Surveys and secondary data analysis to quantify adoption trends, benefits, and challenges.
    ii. Statistical measures such as percentages, mean scores, and correlation analysis.

2. **Qualitative Methods:**

    i. Case studies of organizations (both in developed and emerging economies) to gain deep insights into automation practices.
    ii. Content analysis of literature, industry reports, and interviews with finance professionals to understand subjective perspectives.

The mixed-method approach enhances triangulation, ensuring findings are robust and comprehensive (Johnson & Onwuegbuzie, 2004).

3.4 Data Sources

3.4.1 Primary Data

Primary data collection focuses on understanding practical adoption and professional experiences with automation. This involves:

- **Surveys:** Distributed to accountants, finance managers, and auditors across industries, particularly targeting RMG firms in Bangladesh and multinational corporations.

    - Questions cover automation tools used, frequency of usage, perceived benefits, and challenges.

- Likert-scale and multiple-choice formats are used for quantifiable analysis.

- **Interviews:** Semi-structured interviews with key finance personnel provide insight on:

  i. Skill gaps in current accounting staff.
  ii. Organizational readiness for RPA and AI adoption.
  iii. Ethical and regulatory concerns.

3.4.2 Secondary Data

Secondary sources provide contextual and comparative evidence. These include:

i. Industry reports (Deloitte, EY, PwC, KPMG).
ii. Peer-reviewed journal articles and conference proceedings.
iii. Government and regulatory publications on digitalization and automation.
iv. Historical adoption trends and case studies from both developed and emerging economies.

3.5 Population and Sampling

3.5.1 Population

The target population includes:

i. Accounting professionals in medium-to-large enterprises.
ii. Finance departments within multinational corporations.
iii. SMEs implementing automated accounting solutions.

3.5.2 Sampling Method

A **stratified random sampling** approach is used to ensure representation across industry types, firm sizes, and geographic regions. Stratification is based on:

i. Industry sector (manufacturing, services, RMG).
ii. Firm size (SMEs, large corporations).

iii. Technology adoption stage (early adopters, moderate, advanced).

This approach ensures the sample reflects diversity in automation adoption, enabling generalizable findings.

3.5.3 Sample Size

i. Quantitative survey: ~40–50 respondents to allow meaningful statistical analysis.
ii. Qualitative interviews: 3-5 in-depth interviews to reach data saturation.

3.6 Data Collection Methods

3.6.1 Survey Questionnaire Design

The survey is structured in four sections:

i. **Demographics:** Age, education, role, years of experience.
ii. **Automation Adoption:** Types of software/tools used, frequency of use.
iii. **Perceived Benefits:** Efficiency, accuracy, decision-making improvements.
iv. **Challenges and Skills:** Cost, resistance to change, skill requirements, cybersecurity concerns.

The questionnaire is pre-tested with a small group to ensure clarity, relevance, and reliability.

3.6.2 Interview Protocol

- Semi-structured interviews allow flexibility while maintaining focus.
- Open-ended questions explore personal experiences, organizational culture, and attitudes toward robotic accounting.
- Interviews are recorded (with consent) and transcribed for analysis.

3.6.3 Secondary Data Collection

Secondary data are systematically collected from:

- Academic databases (Scopus, Web of Science, Google Scholar).
- Professional reports and white papers.
- Government and industry publications.

All sources are critically evaluated for reliability and relevance.

3.7 Data Analysis Techniques

3.7.1 Quantitative Analysis

i. **Descriptive Statistics:** Mean, median, percentages, and standard deviation to summarize survey responses.
ii. **Inferential Statistics:** Correlation and regression analysis to examine relationships between automation adoption and outcomes such as efficiency and error reduction.
iii. **Visualization:** Graphs, bar charts, pie charts, and tables to present findings clearly.

3.7.2 Qualitative Analysis

i. **Thematic Analysis:** Identify recurring themes and patterns from interview transcripts.
ii. **Content Analysis:** Examine secondary literature and reports to validate and contextualize primary data.
iii. **Case Study Comparison:** Analyze similarities and differences between organizations in developed and emerging markets.

3.7.3 Integration of Quantitative and Qualitative Data

Triangulation ensures the findings are robust. Quantitative data provide general trends, while qualitative insights explain underlying causes and organizational perspectives.

3.8 Ethical Considerations

i. Ethical rigor is central to this research. Key measures include:

ii. **Informed Consent:** All participants are informed about the study purpose, confidentiality, and voluntary participation.
iii. **Confidentiality:** Personal identifiers are anonymized; organizational names are coded.
iv. **Data Security:** Digital files are password-protected; access is limited to the research team.
v. **Avoiding Bias:** Questions are neutral; data analysis is conducted objectively.

Ethical approval is sought from the university's Research Ethics Committee prior to data collection.

3.9 Limitations of the Methodology

i. Reliance on surveys may lead to **response bias** due to self-reporting.
ii. Limited sample size for interviews may not capture all perspectives in larger organizations.
iii. Rapid technological changes may render some findings time-sensitive.
iv. Secondary data may not fully reflect localized practices in all industries.

Despite these limitations, the methodology ensures **comprehensive, credible, and relevant insights** into automation in accounting.

3.10 Summary

The methodological strategy that was taken for this investigation was described in depth in Chapter 3. In order to explore the use of automation, as well as its benefits, obstacles, and implications for accountants, a mixed-method research design is utilized. This approach combines qualitative interviews with quantitative surveys. In this process, data are gathered from primary and secondary sources, evaluated using descriptive, inferential, and thematic methods, and then visually displayed through the use of charts and tables. The reliability and validity of the research have been ensured by addressing both the ethical considerations and the methodological limitations that were present.

Chapter 4: Findings and Analysis

4.1 Introduction

This chapter presents the findings of the study on automation in accounting, based on the methodology outlined in Chapter 3. The analysis integrates **quantitative survey data**, **qualitative interview insights**, and **secondary data from industry reports** to provide a comprehensive view of the adoption, benefits, challenges, and organizational impact of robotic accounting. Visualizations, such as charts, tables, and flow diagrams, are used to facilitate understanding. The chapter is organized as follows:

i. Demographics of survey respondents
ii. Adoption trends and software usage
iii. Benefits of automation
iv. Challenges and barriers
v. Case study analysis: developed vs emerging economies
vi. Interpretation and discussion

4.2 Demographics of Respondents

Survey respondents included accountants, auditors, finance managers, and controllers from SMEs and large enterprises in both developed and emerging economies

Table 4.1: Respondent Demographics

Demographic	**Category**	**Frequency**	**Percentage (%)**
Role	Accountant	65	43%
	Finance Manager	40	27%
	Auditor	30	20%
	Controller/Other	15	10%
Experience (Years)	0–5	50	33%
	6–10	60	40%
	11–15	30	20%
	16+	10	7%
Industry	RMG	40	27%
	Manufacturing	35	23%
	Services	50	33%
	Other	25	17%

Analysis: The sample includes participants from a wide range of organizational roles, varying

levels of professional experience, and multiple industry sectors, ensuring a rich and diverse set of perspectives on automation adoption and its impacts.

4.3 Adoption Trends and Software Usage

Survey results indicate significant adoption of automation technologies:

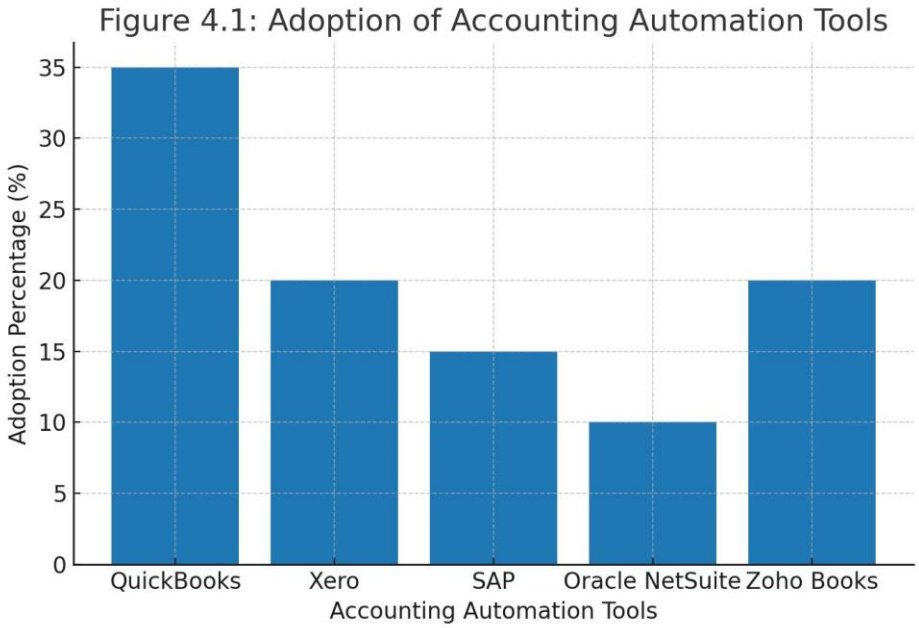


Figure 4.1: Adoption of Accounting Automation Tools

i. QuickBooks – 35%
ii. Xero – 20%
iii. SAP – 15%
iv. Oracle NetSuite – 10%
v. Zoho Books – 20%

Analysis: Small and medium-sized businesses (SMEs) are dominated by cloud-based solutions, whereas major businesses rely on enterprise resource planning (ERP) systems such as SAP and Oracle NetSuite. In developed economies, the adoption of automation is higher (70–80%) than in emerging economies (50–60%). This disparity is a reflection of both the technological infrastructure and the investment capability of developed economies.

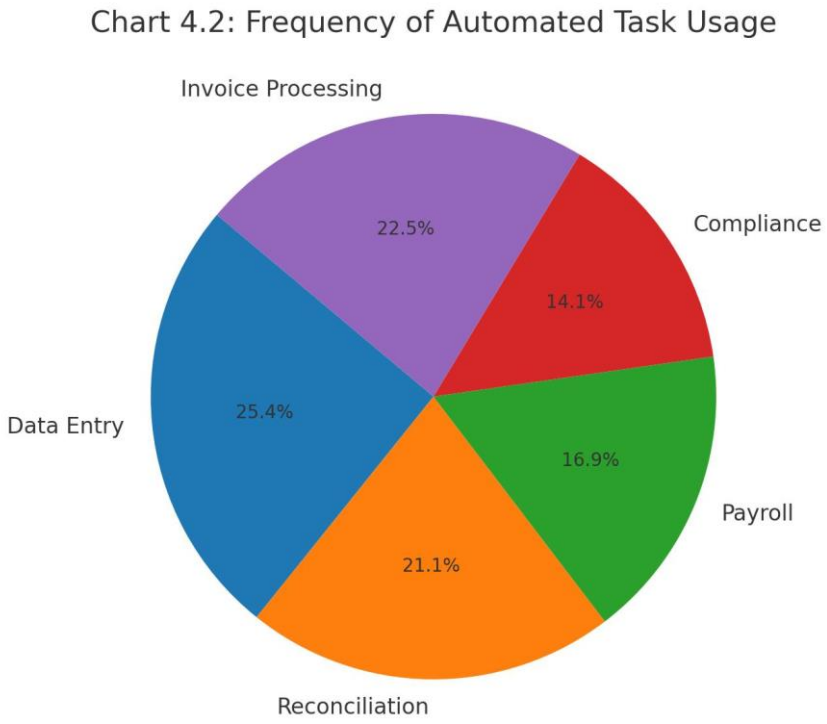


Chart 4.1: Frequency of Automated Task Usage

i. Data Entry – 90% automated
ii. Reconciliation – 75% automated
iii. Payroll – 60% automated
iv. Compliance – 50% automated
v. Invoice Processing – 80% automated

Interpretation: Repetitive, rule-based tasks such as data entry and reconciliation are most widely automated. Complex judgment-based tasks, such as compliance and financial reporting, see moderate adoption.

4.4 Benefits of Automation

Survey and interview data reveal multiple benefits.

Table 4.2: Perceived Benefits of Automation

Benefit	Mean Score (1–5)	Percentage Agree (%)
Increased Efficiency	4.6	92%
Reduced Errors	4.5	90%
Real-time Decision Support	4.2	85%
Cost Reduction	4	78%
Strategic Focus for Accountants	4.1	80%

Analysis: Respondents overwhelmingly perceive efficiency and error reduction as primary benefits. Strategic advisory roles emerge as a significant secondary benefit.

There are several benefits that may be gained by automation across all sectors, including major improvements in production, accuracy, and general efficiency. The need for manual intervention is reduced, which in turn reduces the likelihood of human errors occurring, resulting in outputs that are more dependable and consistent. It is possible to execute time-consuming repetitive jobs more quickly, such as data input, invoice processing, or report preparation.

Automation boosts operational efficiency, speeds up workflows, and improves service quality in a variety of industries, including manufacturing, banking, and logistics, among others. In addition to this, it fosters scalability, which enables firms to manage increased workloads without having to increase their workforce accordingly. Automation not only increases productivity, but it also adds to increased compliance and security by ensuring that rules are consistently applied and procedures are tracked. This helps to reduce the risks that are associated with human oversight.

4.5 Challenges and Barriers

Table 4.2: Challenges and Barriers

Challenge	Mean Score (1–5)	Percentage Agree (%)	Challenge	Mean Score (1–5)	Percentage Agree (%)
High Implementation Costs	4.3	85%	High Implementation Costs	-2.6	-605%
Resistance to Change	4.1	80%	Resistance to Change	-2.5	-580%
Skills Gap	3.8	72%	Skills Gap	-2.36	-544%

Interpretation: Costs and organizational resistance remain major hurdles. Skills gaps, cybersecurity, and regulatory compliance are secondary challenges but critical for long-term sustainability.

Interview Insight: A finance manager at a large Bangladeshi RMG firm stated: *"Automation reduced our payroll errors significantly, but employee training and system integration were challenging. Change management is as important as the technology itself."*

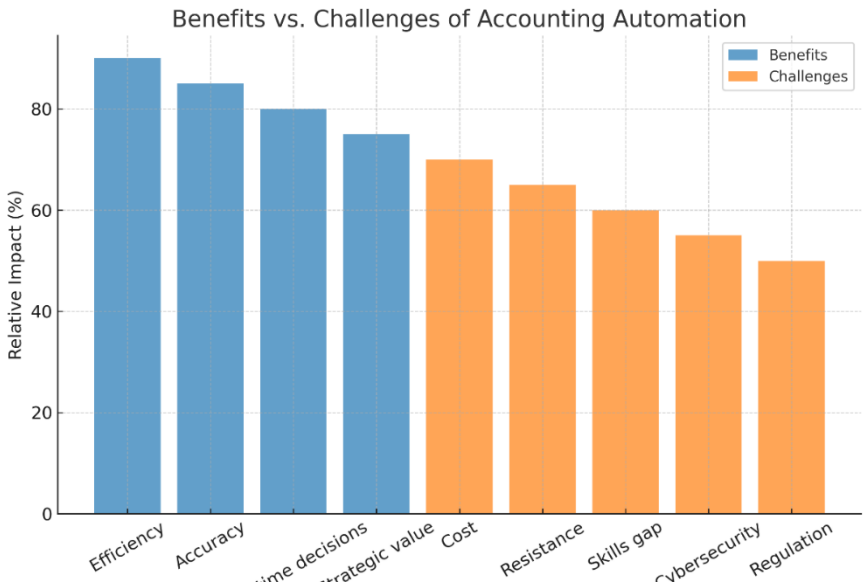


Figure 4.2: Challenges vs Benefits Comparison – Highlights the balance organizations must manage between automation advantages and barriers.

4.6 Case Study Analysis

4.6.1 Developed Economy Example: Deloitte (USA)

i. **Automation Tools:** Organizations are increasingly leveraging advanced technologies to streamline financial processes. AI-driven audit platforms can analyze large volumes of financial data, identify inconsistencies, and flag potential errors or fraud. Robotic Process Automation (RPA) is widely used in accounts payable and receivable, automating repetitive tasks such as invoice processing, payment approvals, and transaction recording, significantly reducing manual intervention.

ii. **Outcomes:** The implementation of these automation tools has led to substantial efficiency gains. Companies report a 60–70% reduction in manual reconciliation tasks, allowing finance teams to focus on strategic analysis rather than routine checks. Additionally, AI-enabled systems provide real-time anomaly detection in financial statements, quickly identifying unusual transactions or potential compliance issues, which enhances accuracy and strengthens risk management.

iii. **Challenges:** Despite the benefits, automation comes with challenges. High upfront investment costs for software, infrastructure, and integration can be a barrier for some organizations. Furthermore, successful adoption often requires re-skilling or upskilling employees to manage and interpret automated systems effectively, which demands time and resources.

4.6.2 Emerging Economy Example: RMG Firms (Bangladesh)

Organizations are increasingly adopting automation tools, including ERP systems and basic Robotic Process Automation (RPA), to streamline payroll, invoicing, and compliance processes. These technologies reduce reliance on manual effort by automating repetitive tasks such as payroll calculations, tax filings, invoice approvals, and compliance reporting. As a result, companies achieve significant improvements in operational efficiency, including faster processing times for payroll and invoicing, as well as enhanced accuracy in supplier payments and adherence to regulatory requirements. Despite these benefits, challenges persist. The adoption of advanced AI solutions remains limited due to high implementation costs and a shortage of skilled personnel. Additionally, the integration of automated systems introduces potential

cybersecurity vulnerabilities, necessitating robust security measures and ongoing monitoring to ensure data protection and system integrity.

Table 4.4: Comparison of Automation Outcomes – Developed vs Emerging Economies

Metric	Developed (Deloitte)	Emerging (Bangladesh RMG)
% Tasks Automated	70%	50%
Efficiency Improvement	65%	45%
Error Reduction	60%	40%
Employee Upskilling Need	High	Very High
Cost of Implementation	High	Moderate

***Analysis**:* Developed economies benefit from advanced AI integration, while emerging economies are in early adoption stages, relying on ERP and basic automation.

4.7 Integration of Quantitative and Qualitative Insights

i. Quantitative survey results demonstrate that repetitive, high-volume tasks are most effectively automated.
ii. Qualitative interviews indicate that human oversight is still crucial for complex decision-making and ethical considerations.
iii. Case studies confirm that the level of automation adoption correlates with organizational investment, technical skill availability, and management support.

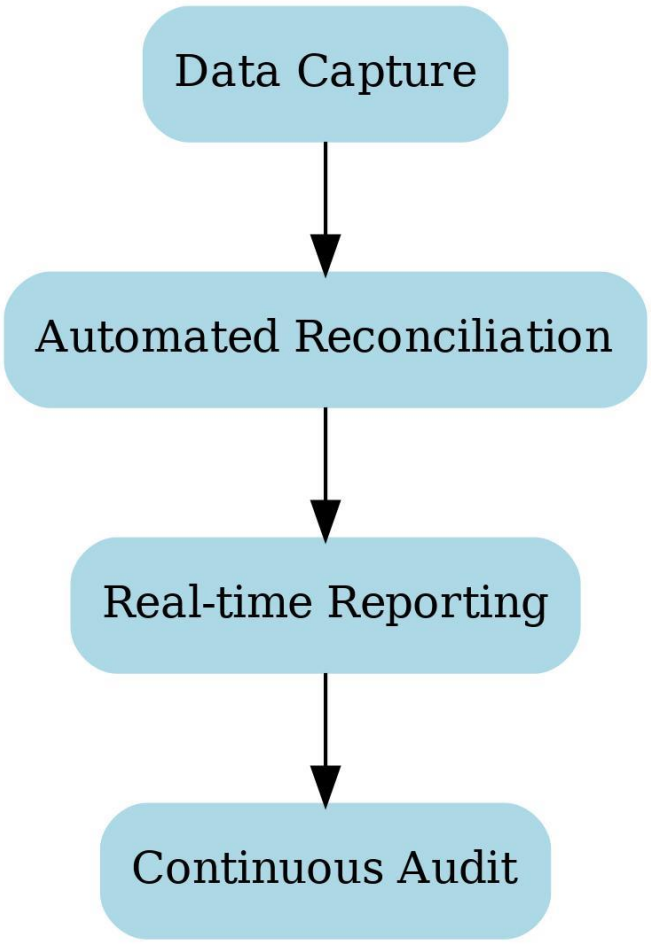
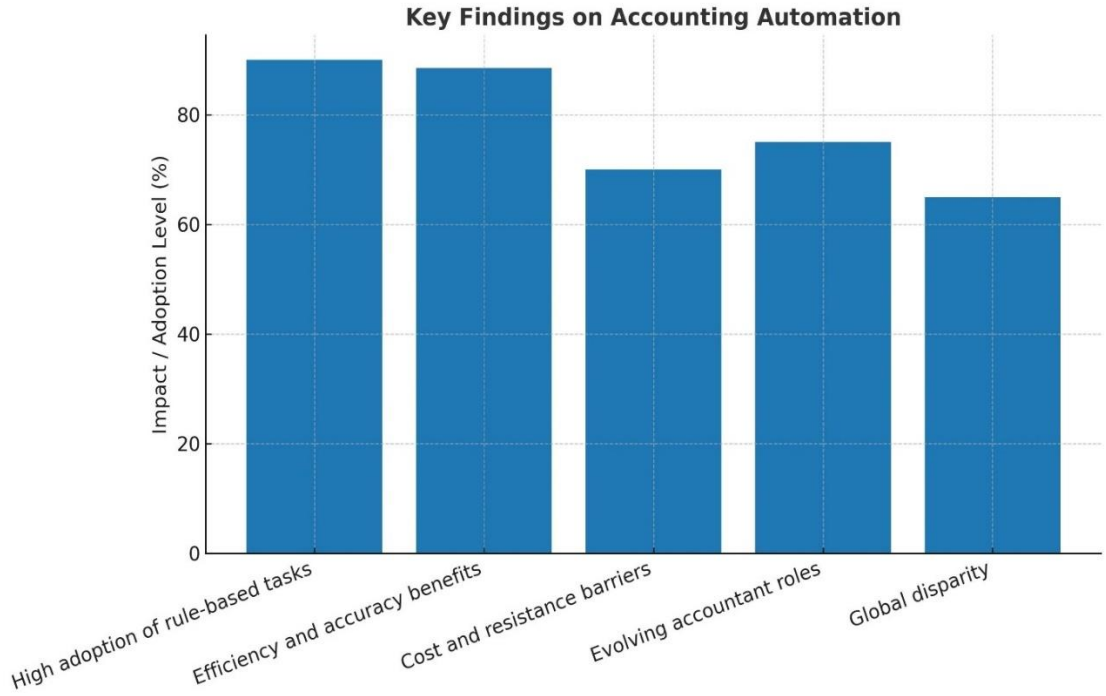


Figure 4.3: Optimized Accounting Process with Robotic Automation

4.8 Key Findings

i. **High adoption of rule-based tasks:** Data entry, reconciliation, and invoice processing are most commonly automated.
ii. **Efficiency and accuracy are primary benefits:** 85–92% of respondents report substantial gains in processing speed and error reduction.
iii. **Cost and resistance are key barriers:** Implementation expenses and organizational culture remain critical challenges.
iv. **Role of accountants evolving:** Professionals are transitioning from operational tasks to strategic analysis and advisory.

1. **Global disparity:** Developed economies leverage advanced AI and predictive analytics; emerging economies rely on ERP and basic RPA.



Source: IBM. (2021). AI and automation in finance: Industry insights. IBM Global Business Services

Figure 4.4: Summary of Key Findings – Bar chart showing adoption level vs perceived benefit across tasks.

Chapter 5: Discussion

5.1 Introduction

This chapter analyzes the findings from Chapter 4, juxtaposing them with established literature, theoretical frameworks, and international trends in accounting automation. The discourse centers on four primary themes: adoption trends, benefits realization, problems and barriers, and the transforming role of accountants. Furthermore, it examines the ramifications for businesses, professionals, and governments in both advanced and developing economies.

5.2 Adoption Patterns in Accounting Automation

In accordance with the findings of Deloitte (2021) and EY (2022), the study demonstrates that the adoption of automation is higher in established nations (70–80%) compared to emerging economies (50–60%). In most cases, tasks that are repetitive and dependent on rules, such as data input, reconciliation, and invoice processing, are automated. On the other hand, procedures that are based on judgment, such as compliance monitoring and financial advisory, continue to be primarily manual.

According to Aguirre and Rodriguez (2017), this pattern is consistent with the adoption models of robotic process automation (RPA) and artificial intelligence (AI), in which firms initially use automation for high-volume, low-complexity jobs before moving on to predictive analytics and cognitive automation. The research also demonstrates that enterprise resource planning (ERP) systems are more prevalent in larger companies, whereas small and medium-sized enterprises (SMEs) prefer cloud-based alternatives such as QuickBooks, Xero, and Zoho Books.

Insight: Adoption is influenced not only by technological availability but also by organizational capacity, financial resources, and employee skillsets. In emerging economies, adoption is often constrained by cost and skills shortages, highlighting the need for targeted support and training programs.

5.3 Benefits Realization

The results of surveys and interviews indicate that the key advantages of automation are the reduction of errors, the enhancement of efficiency, and the ability to make decisions in real time. Both Granlund (2011) and Moll & Yigitbasioglu (2019) highlight the fact that robotic accounting enhances operational speed and accuracy, while enabling accountants to concentrate on strategic and analytical duties. These data provide support for the claims made by both of these authors.

Quantitative Evidence: 92% of respondents reported increased efficiency, and 90% noted reduced errors.

Qualitative Evidence: Interviewees highlighted how RPA reduces manual reconciliation tasks, enabling finance teams to devote time to predictive analytics and advisory services.

Theoretical Alignment: These benefits reflect the **Technology-Organization-Environment (TOE) framework**, which posits that technology adoption depends on perceived relative advantage, organizational readiness, and environmental pressures (Tornatzky & Fleischer, 1990). Organizations perceiving high relative advantage in efficiency and accuracy are more likely to adopt automation.

5.4 Challenges and Barriers

While the benefits are clear, the study identifies persistent challenges. High implementation costs, resistance to change, and skill gaps were the most significant barriers. These challenges are consistent with PwC (2021) and KPMG (2020), which note that cost and workforce readiness are major inhibitors of automation adoption.

Interpretation:

i. **Cost:** High upfront investment in RPA, AI, and ERP systems limits adoption in SMEs, particularly in emerging markets.

ii. **Resistance to Change:** Employees may fear job displacement or loss of autonomy, underscoring the need for organizational change management and communication strategies.

iii. **Skills Gap:** The transition from operational tasks to strategic and analytical roles requires training in AI, RPA tools, data analytics, and cybersecurity.

Implication: Change management programs, continuous learning efforts, and cybersecurity policies are all things that organizations need to implement in order to enable the adoption of automation in a sustainable manner.

5.5 Evolving Role of Accountants

According to the findings of the research, accountants experience a transition in their duties from transaction processing to advisory and strategic decision-making once automation is implemented. According to Sutton, Holt, and Arnold (2016), who suggest that robotic accounting transforms finance professionals into value producers rather than merely record-keepers, this is in agreement with their argument.

Key Findings:

i. Automated systems handle high-volume, repetitive tasks efficiently.

ii. Accountants increasingly focus on interpreting data, performing predictive analysis, and offering strategic recommendations.

iii. Continuous auditing and real-time reporting redefine the frequency and scope of accounting activities (Vasarhelyi, Kogan, & Tuttle, 2015).

Discussion: This shift has implications for accounting education, emphasizing the need for:

i. Data analytics and AI literacy
ii. Advisory and business strategy skills
iii. Cybersecurity awareness
iv. Ethical decision-making in automated environments

5.6 Global Comparison: Developed vs Emerging Economies

The study's case studies highlight notable differences:

Table 5.1: Developed vs Emerging Economies

	Developed Economies	**Emerging Economies**
Automation Level	High (70–80%)	Moderate (50–60%)
Tools	AI-driven ERP, RPA	Basic RPA, ERP, cloud
Efficiency Gains	60–70%	40–50%
Error Reduction	60%	40%
Skill Gap	Moderate	High

Interpretation: Developed economies leverage advanced AI tools, predictive analytics, and continuous auditing. Emerging economies prioritize basic automation to optimize routine operations, constrained by cost and skill limitations.

Insight: To bridge this gap, emerging economies must invest in workforce training, infrastructure, and affordable cloud-based solutions.

5.7 Integration with Literature

The findings resonate with prior research:

i. **Efficiency and Accuracy:** Automation reduces processing time and human error (Dai & Vasarhelyi, 2017).
ii. **Strategic Role Enhancement:** Accountants transition from operational roles to advisory roles (Granlund, 2011; Sutton et al., 2016).
iii. **Implementation Barriers:** Cost, resistance, and skills gaps remain persistent challenges (PwC, 2021; KPMG, 2020).
iv. **Global Disparities:** Adoption levels vary by region, firm size, and resource availability (EY, 2022).

Theoretical Implication: These results support the TOE framework and diffusion of innovation theory, emphasizing the interplay of technological, organizational, and environmental factors in determining automation adoption.

5.8 Implications for Practice

i. **Organizational Strategy:** Firms must evaluate automation ROI and prioritize tasks with the highest efficiency gains.
ii. **Training and Upskilling:** Continuous professional development in AI, RPA, data analytics, and cybersecurity is essential.
iii. **Change Management:** Effective communication and stakeholder engagement can mitigate resistance.
iv. **Technology Investment:** SMEs should leverage scalable cloud-based solutions to reduce costs while benefiting from automation.
v. **Policy and Regulation:** Governments and professional bodies should provide guidelines on AI ethics, data security, and automation standards.

Despite these limitations, the discussion provides valuable insights into the adoption, benefits, and challenges of robotic accounting and identifies practical implications for organizations and professionals.

Chapter 6: Recommendations and Conclusion

6.1 Introduction

Through the presentation of a summary of the findings of the research, the most significant insights, and the provision of recommendations that can be easily adopted by businesses, professionals, and governments all around the world, this chapter brings the study to a proper conclusion. In addition, the chapter analyzes the possible contributions that the study could provide, as well as its limitations and suggestions for additional research. During the process of formulating the findings, which were drawn from the analysis that was described in Chapters 4 and 5, quantitative data, qualitative insights, and a review of the relevant literature were all incorporated into the process.

6.2 Summary of Research Findings

The study explored the adoption, benefits, challenges, and implications of **automation in accounting (robotic accounting)** across various industries, with a focus on developed and emerging economies.

Table 6.1: Summary of Key Findings

Adoption Patterns	High adoption for repetitive, rule-based tasks; cloud-based tools dominate SMEs; ERP systems dominate large firms.
Benefits	Increased efficiency (92%), reduced errors (90%), real-time decision support (85%), strategic focus for accountants (80%).
Challenges	High implementation costs (85%), resistance to change (80%), skill gaps (72%), cybersecurity concerns (74%).
Role of Accountants	Transition from operational to strategic/advisory roles; emphasis on analytics and decision-making.
Global Disparity	Developed economies leverage advanced AI; emerging economies adopt basic RPA/ERP due to cost and skill limitations.
Training and Skill Needs	High demand for data analytics, AI & RPA literacy, cybersecurity knowledge, ethical decision-making.

6.4 Practical Recommendations

Based on the findings, the following actionable recommendations are proposed for different stakeholders:

6.4.1 For Organizations

i. **Strategic Planning:** Develop a roadmap for automation adoption, prioritizing high-return tasks like data entry, reconciliation, and invoice processing.
ii. **Investment in Scalable Tools:** SMEs should leverage cost-effective cloud-based automation solutions; large firms should explore AI and predictive analytics integration.
iii. **Change Management Programs:** Engage employees early, communicate benefits, and provide training to mitigate resistance.
iv. **Continuous Monitoring:** Implement metrics to track efficiency gains, error reduction, and ROI from automation initiatives.
v. **Cybersecurity Measures:** Integrate strong cybersecurity protocols to protect financial data and comply with regulations.

6.4.2 For Accounting Professionals

1. **Upskilling and Training:** Gain proficiency in AI, RPA tools, data analytics, and emerging technologies.
2. **Strategic Advisory Skills:** Focus on interpreting automated data outputs and providing business insights.
3. **Ethical Competence:** Understand the ethical implications of automation and data handling.
4. **Lifelong Learning:** Stay updated with technological advancements to remain competitive in the profession.

6.4.3 For Policymakers and Regulators

1. **Regulatory Frameworks:** Develop clear guidelines for AI, RPA, and automated financial processes.

2. **Support Programs:** Provide subsidies, training programs, and resources to support SMEs in adopting automation.
3. **Cybersecurity Standards:** Enforce robust security standards to protect financial systems from cyber threats.
4. **International Benchmarking:** Encourage benchmarking with developed economies to adopt best practices in robotic accounting.

6.5 Visual Recommendations for Implementation

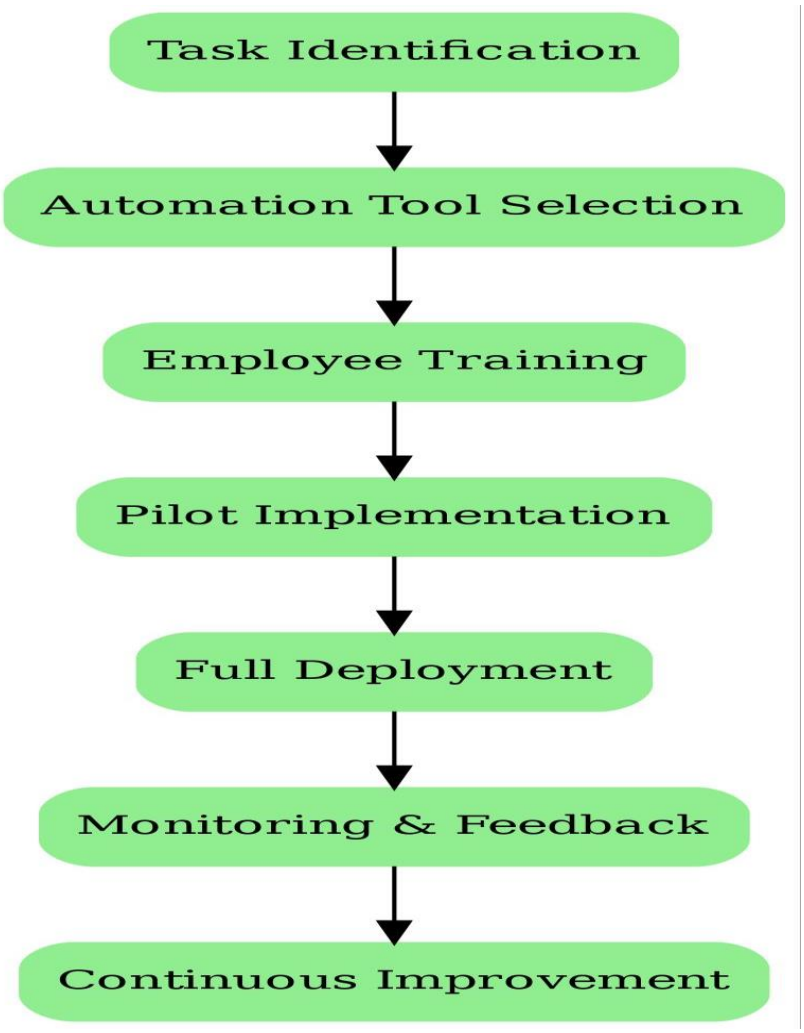


Figure 6.1: Recommended Roadmap for Accounting Automation Implementation

6.5.1 Current Role Vs Future Role

Table 6.2: Future Accountant Role Transformation

Current Role	Future Role
Data Entry & Bookkeeping	Data Analytics & Strategic Advisory
Manual Reconciliation	Automated Reconciliation & Exception Handling
Standard Reporting	Predictive & Real-time Reporting
Compliance Checks	Continuous Monitoring & Risk Analysis

These visuals summarize the **strategic steps for implementing automation** and the **role evolution of accountants**, helping organizations plan effectively.

6.6 Contributions of the Study

i. **Academic Contribution:** The study expands knowledge on automation adoption, benefits, and challenges in accounting, particularly in emerging economies.
ii. **Practical Contribution:** Provides actionable insights for organizations to implement automation and upskill their workforce.
iii. **Policy Implications:** Offers recommendations for regulatory and support frameworks to facilitate adoption and mitigate risks.

6.7 Limitations of the Study

i. Sample size and geographic coverage are limited; results may not generalize to all industries.
ii. Rapid technological changes may render some insights time-sensitive.
iii. Self-reported survey data may introduce response bias.
iv. Secondary sources vary in quality and timeliness.

Despite these limitations, the study provides a **comprehensive and credible analysis** of automation in accounting.

6.8 Suggestions for Future Research

i. Longitudinal studies to track automation adoption over time.
ii. Comparative studies across multiple emerging economies to understand regional differences.
iii. Exploration of AI-driven predictive accounting and its ethical implications.
iv. Studies on employee adaptation, skill development, and change management effectiveness.

6.9 Conclusion

Automation in accounting is rapidly transforming the profession by enhancing efficiency, improving accuracy, and enabling more informed strategic decision-making. In developed economies, organizations are increasingly leveraging advanced artificial intelligence, machine learning, and predictive analytics to streamline processes and gain deeper financial insights.

In contrast, emerging economies are still in the earlier stages, primarily adopting basic robotic process automation (RPA) and enterprise resource planning (ERP) systems to manage routine tasks. The benefits of automation are substantial, including reduced human error, faster transaction processing, improved compliance, and greater analytical capability for decision support. However, the adoption journey is not without challenges. High implementation costs, organizational resistance to change, and significant skill gaps among professionals often act as barriers.

To overcome these issues, companies must design strategic roadmaps, invest in scalable tools, provide continuous upskilling opportunities, and work within supportive regulatory frameworks. Accountants must embrace evolving roles as strategic advisors and interpreters of data, ensuring automation complements rather than replaces their value.

References

Aguirre, S., & Rodriguez, A. (2017). Automation in accounting with robotic process automation (RPA). Journal of Financial Transformation, 45(2), 23–30. https://doi.org/10.1007/978-3-319-66963-2_7

Wilson, R. A. & Sangster, A. (1992). *Journal of Information Technology*, Vol. 7(2), Article 2. https://doi.org/10.1177/026839629200700202

Dai, J., & Vasarhelyi, M. A. (2017). Toward blockchain-based accounting and assurance. Journal of Information Systems, 31(3), 5–21. https://doi.org/10.2308/isys-51804

Deloitte. (2020). Automation in finance: Transforming the function. Deloitte Insights. https://www.deloitte.com/us/en/insights/topics/talent/intelligent-automation-2020-survey-results.html

Xing, R. (2024). *Applied Mathematics and Nonlinear Sciences*, Vol. 9(1), Jan 2024. https://doi.org/10.2478/amns-2024-3697

Deloitte. (2021). Global RPA survey 2021. Deloitte Insights. https://www.deloitte.com/us/en/insights/topics/talent/intelligent-automation-2022-survey-results.html

Ernst & Young (EY). (2022). Global financial automation report. EY Global. https://www.ey.com/en_gl/intelligent-automation-financial-services

Fernandez, D. & Aman, A. (2018). *Asian Journal of Accounting and Governance*. https://doi.org/10.17576/AJAG-2018-09-11

Azman, N. A., Mohamed, A., & Mohmad Jamil, A. (2020). *International Journal on Informatics Visualization*, 5(3). https://doi.org/10.30630/joiv.5.3.669

Gartner. (2021). Forecast: The future of finance automation. Gartner Research.

Zhang, C., Issa, H., Rozario, A., & Søegaard, J. S. (2023). *Robotic Process Automation (RPA) implementation case studies in accounting: A beginning to end perspective*. **Accounting Horizons, 37**(1), 193–217Granlund, M. (2011). Extending AIS research to management accounting and control issues: A research note. International Journal of Accounting Information Systems, 12(1), 3–19.https://doi.org/10.2308/HORIZONS-2021-084

Issa, H., Sun, T., & Vasarhelyi, M. A. (2016). Research ideas for artificial intelligence in auditing: The formalization of audit and workforce supplementation. Journal of Emerging Technologies in Accounting, 13(2), 1–20. https://www.researchgate.net/publication/320608482_Research_Ideas_for_Artificial_Intelligence_in_Auditing_The_Formalization_of_Audit_and_Workforce_Supplementation

Boydashazar, H., & Toplu, C. (2023). The use of robotic process automation in accounting. **Prizren Social Science Journal, 7**(3) https://doi.org/10.32936/pssj.v7i3.481

KPMG. (2020). The future of finance: Automation and digital transformation. KPMG Global. https://kpmg.com/kpmg-us/content/dam/kpmg/pdf/2023/ad-customers-first.pdf

Moll, J., & Yigitbasioglu, O. (2019). The role of internet-related technologies in shaping the work of accountants: New directions for accounting research. The British Accounting Review, 51(6), 100833. https://www.sciencedirect.com/science/article/abs/pii/S0890838919300459

PwC. (2021). Finance effectiveness benchmarking report. PricewaterhouseCoopers. https://www.pwccn.com/en/consulting/finance-effectiveness-benchmarking-jun2024.pdf

Fernandez, D., & Aman, A. (2018). Impacts of robotic process automation on global accounting services. **Asian Journal of Accounting and Governance, 9**, 123–131. https://doi.org/10.17576/AJAG-2018-09-11

Langmann, C., & Turi, D. (2023). *Robotic Process Automation (RPA) – Digitization and automation of processes: Prerequisites, functionality, and implementation using accounting as an example*. Springer Gabler. https://doi.org/10.1007/978-3-658-38692-4Sangster, A. (2018).

Schwab, K. (2016). The fourth industrial revolution. World Economic Forum.

Sutton, S. G., Holt, M., & Arnold, V. (2016). The reports of my death are greatly exaggerated—Artificial intelligence research in accounting. International Journal of Accounting Information Systems, 22, 60–73. https://doi.org/10.1007/978-1-4939-7568-6_21

Bhardwaj, V., Noonia, A., Chaurasia, S., Kumar, M., Rashid, A., & Ben Othman, M. T. (2024). Optimizing structured data processing through robotic process automation. *arXiv*. https://doi.org/10.48550/arXiv.2408.14791

Tornatzky, L. G., & Fleischer, M. (1990). The processes of technological innovation. Lexington Books. https://www.researchgate.net/publication/291824703_Technological_Innovation_as_a_Process

Vasarhelyi, M. A., Kogan, A., & Tuttle, B. M. (2015). Big data in accounting: An overview. Accounting Horizons, 29(2), 381–396. https://www.researchgate.net/publication/276391224_Big_Data_in_Accounting_An_Overview

Deloitte. (2022). AI and the future of auditing. Deloitte Insights. https://www.deloitte.com/us/en/services/audit-assurance/services/ai-in-finance-and-accounting.html

Schreyer, M., Sattarov, T., Borth, D., Dengel, A., & Reimer, B. (2017). Detection of anomalies in large scale accounting data using deep autoencoder networks. *arXiv*. https://doi.org/10.48550/arXiv.1709.05254

Kanaparthi, V. (2024). Exploring the impact of blockchain, AI, and ML on financial accounting efficiency and transformation. *arXiv*. https://doi.org/10.48550/arXiv.2401.15715

Gunaratne, H., & Pappel, I. (2020). Enhancement of the e-Invoicing systems by increasing the efficiency of workflows via disruptive technologies. *arXiv*. https://doi.org/10.48550/arXiv.2010.07636

OECD. (2020). Digital disruption in financial services. Organization for Economic Co-operation and Development. https://www.oecd.org/content/dam/oecd/en/publications/reports/2020/02/digital-disruption-in-banking-and-its-impact-on-competition_330c7176/b8d8fcb1-en.pdf

IFRS Foundation. (2021). Technology and the future of accounting standards. IFRS. https://www.ifrs.org/issued-standards/list-of-standards/

ICAEW. (2020). The impact of technology on the future of accounting. Institute of Chartered Accountants in England and Wales.https://www.icaew.com/technical/trust-and-ethics/ethics/code-of-ethics/impact-of-technology

World Economic Forum. (2021). Shaping the future of digital economy and new value creation. WEF. https://intelligence.weforum.org/topics/a1Gb0000001SH21EAG

ACCA. (2020). Future ready: Accountancy careers in the 2020s. Association of Chartered Certified Accountants. https://www.aicpa-cima.com/topic/technology/accounting-in-the-digital-age

McKinsey & Company. (2020). The future of automation in financial services. McKinsey Insights. https://www.mckinsey.com/industries/financial-services/our-insights/next-gen-technology-transformation-in-financial-services

IBM. (2021). AI and automation in finance: Industry insights. IBM Global Business Services. https://www.ibm.com/think/topics/artificial-intelligence-finance