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Leveraging AI and Technology for Effective Budgeting and Cost Control: Enhancing Retail Revenue in Azerbaijan

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Introduction

The digital revolution is starting to change operational and financial processes in many various sectors, with Artificial Intelligence (AI) leading the front stage. The recent year's statistics and observations show that the financial landscape changed profoundly driven by the convergence of AI and digital technologies. The core functions of financial management such as cost control and budgeting are starting their structure due to the rapid use of digital technologies. The most significant advancement of these digital technologies is Artificial Technologies (AI) that is transforming the core operations of the financial management including resource allocation, financial forecasting, budget planning and cost control. Real time adjustments and accurate forecasting, cost controlling are essential for effective financial strategies in the global business environment that is full of volatility and uncertainty (Akkani, 2024). Historical models and static analysis are considered as traditional methods that work ineffectively and show the slow response to the dynamic market changes. The parts of budgeting and cost control process are outdated and frequently result in errors, inefficiencies and a reactive approach to the financial management process. On the reverse side, AI driven systems allow businesses to start continually adjusted and dynamic financial planning processes applying machine learning and predictive analytics to provide more adaptable and precise forecasts (Jain & Kulkarni, 2023).

In the emerging economies like Azerbaijan, the development of the digital maturity is still crucial for improving the retail sector budgeting and cos control system with using the potential of AI. The businesses are looking for ways to increase competitiveness and cost effectiveness, they are starting to research and trying to understand how AI can change the budgeting and cost control process in financial management. This thesis analyses how digital technologies and AI might improve the cost control and budgeting process in Azerbaijan's retail industries, purpose to assess the practical strategies, advantages and readiness for integration.

Across different economics and industries, AI has developed as a powerful accelerator of data driven decision-making, strategical agility and operational efficiency. Nowadays a lot of cases show that financial forecasting, cost control and budgeting process requires comparing the traditional models and dynamic, technological statistical approaches (Akkani, 2024; Jain&Kulkarni, 2023).

The fundamental parts of effective financial management are cost control, budgeting procedures that consist of some pillars that are performance monitoring, resource allocation and strategic planning (Jain & Kulkarni,2023). Historically, these mentioned procedures have depended on statistical assumptions, manual calculations and disconnected data systems. As highlighted by the one of the Big4 Companies KPMG (2023) many businesses still struggle with inefficient data reconciliations, limited integration of stakeholders and unclear planning structure are negatively affecting the accuracy and timeliness of financial decisions. The rigid plans that are ignoring the real-time company dynamics lead to the result of less real ideal performance. Increasingly adoption of AI improves adaptability and accuracy of financial planning systems, and the result becomes overcoming these limitations. AI driven models like predictive analytics, machine learning and neural networks assist businesses for detecting the nonlinear pattern, analyzing the real-time large datasets and updating the budgetary forecasts (Akkani, 2024; BCG, 2024). As highlighted by BCG (2024) these AI tools not only improve the accuracy of budgetary forecasting but also create the opportunity for automated variance analysis, scenario modelling and anomaly detection and the purpose is to transform the budgeting from reactive to proactive exercise.

Budgeting, forecasting and cost control are foundational elements of financial planning and management that perform as the foundation for strategic decision-making, effective resource allocation and long-term operational sustainability. Budgeting and cost control processes are traditionally driven by static methodologies that consist of historical trend analysis, manual calculation and periodic (annual or quarterly) financial cycles (Akanni, 2024). These traditional budget planning and cost control processes are not considered an effective way of responding to the complex economic environment and today's rapid changes. Businesses operating in an extremely dynamic market face significant obstacles when using traditional budgeting and cost control tools, especially due to their dependence on their past performance, rigidity and ability to incorporate real-time factors. The unpredictable dynamics of modern marketplace that driven by geographic variations, technology distractions and uncertain consumer behavior require more forward-looking and flexible budgeting system. Accordingly, static budgeting and cost control frequently get out of date soon after their creation, generating ineffective strategic planning and financial projections inaccurate (Akanni, 2024). Within cost control and budgeting framework, AI and technology have become a strategic step of accuracy, efficiency, and rapidity. Global businesses and corporations start to adopt the economic situations, and they are trying to improve their ability to forecast for real time and react quickly to the unexpected economic changes, therefore nowadays allocation of resources has become vital for the businesses. This master thesis investigates the effect of the technological advancements and AI improves the effectiveness of the budgeting and cost control in Azerbaijan especially retail sector. The recent trends show that the advanced economies have started to the implication of the AI and technology driven financial tools and recent years the progress in this works effected significantly the overall operations of the business, but in the developed countries like in Azerbaijan emerging markets are facing some challenges in way to improvements. The one of the main goals of this research to find out the gap between local application and global trend and to bring the best practices to the local market.

1.1. Background and context

In emerging markets and developed countries, the functionality of budgeting and cost control depends on not only the creation but also on quality of monitoring and implementation system. Traditional budgeting and cost control systems are known as accounting practices that consist of sometimes focusing solely on tracks payments, disregarding the earlier stages such as obligations and commitments, that are considered the most vital part of actual financial performance. In some developing countries, budgeting information is separated or based on administrative procedures that do not show the actual phases of the cycle of expenditure and this situation creates the challenges to evaluate program execution and control expenses effectively. These limitations are obvious in emerging and transitional economies, where inadequate commitment rules and delayed payments lead to an increase of the outstanding payments and budget overruns. In such situations, costs are not always recorded in real time and budget allocations creates barriers for effective analysis of financial risk and sectoral imbalances.

Recent trends show that the traditional business models are changed by the innovation of the new advanced technology and AI, and it positively affected all the business operations including the finance sector. To response quickly to the dynamic market environment, the businesses are trying to start integrating the AI driving tools into the whole core financial and business operations. This process leads to an effective decision-making process and improves accuracy and efficiency (Rivera, 2025; OECD, 2024). Large changes within the transformation process, the proven facts show that the operation of AI in the budgeting and cost control process are decreasing human tasks,

and these two finance operations have been traditionally described as delayed reaction, manual calculations and rigid cycles. (Akanni, 2024). Acceleration of the adoption process of AI and advanced technological tools changing traditional finance and business models (Rivera, 2025). AI is sharply transforming all business parts including the finance sector with different ways such as transforming manual core functions to automation, reedifying decision making processes (Maple et.al.,2023). One of the prominent branches of AI is machine learning which is widely used in financial forecasting, budget planning and cost control operations of the businesses and it leads to the more responsive and agile financial strategies (Maple et.al.,2023). The integration of AI in cost control and budgeting process lets the organizations find the inefficiencies, generate the data-driven decisions with significant accuracy and higher speed than manual processes (Maple et.al.,2023). Robotic process automation (RPA), expert systems, (NLP) natural language processing are other acceptable financial workflows that give an opportunity automated responses, compliance reports for regulations and intelligent document handling. (Maple et.al.,2023). Despite the benefits of AI, the adoption in financial side creates notable issues including the lack of transparency, model bias and excessive reliance on algorithmic decisions (Maple et.al.,2023). Challenges such as fairness, explainability and accountability are especially crucial in the finance sector where the decisions influence the data privacy and financial health (Maple et.al.,2023). This thesis aims to research application of Artificial Intelligence in cost control and budgeting processes, most particularly within the retail sector of Azerbaijan, by combining the local practices and global experiences. By analyzing technological potential, issues of governance and practical limitations, the thesis contributes to straightforward awareness of how AI can support responsible, effective and flexible financial planning that leads to the accurate budgeting and cost controlling process in the retail sector of the emerging market (Maple et.al.,2023).

The core elements of financial management are cost control and budgeting that offers the framework for tracking, planning and assessing organizational performance. Traditional methods have some limitations but most of the business still rely on time consuming methods like manual processes and spreadsheet-based models that lead to errors and ineffectiveness. According to the KPMG study, majority of finance executives think that their cost control and budgeting processes are too complicated and labor-intensive, and it creates the disconnect between actual performance and strategic objectives (KPMG, 2023).

There are some crucial factors that customer demand, inflationary pressures and supply chain disruptions therefore inefficiency becomes the especially problematic in retail sector. AI suggests some solutions such as scenario-based planning, real time data processing and facilitating automation. Using complex methods like machine learning algorithms and neural networks enable more dynamic budget planning, forecasting and accurate cost control. Furthermore, shifting to the AI based budgeting and cost control are technical, it also requires understanding the benefits of using digital technology and AI and start to do cultural transformation within the organization. Deloitte study revealed that most of the financial institutions should not underestimate the need to "rewiring their digital DNA" and they should start to find the ways for aligning talent strategies and internal structures with objectives of digital transformation. Solving the organizational and cultural barriers will accelerate the integration of AI and digital technology to all business operations on the opposite side, the implementation will be mostly unsuccessful (Deloitte, 2016).

The retail business in Azerbaijan is facing some additional issues like data governance procedures, limited access to the integrated planning tools and lack of AI training by finance professionals. Despite these obstacles, the advantages of digital transformation and AI tools have positive effects on budgeting and cost control. After the transformation of AI, the retail business will observe the

faster decision-making process, better alignment between actual results and strategic goal, improved the accuracy of forecast and they will start to pass the modern budgeting and cost control methods in the region.

Global rise of AI and digital transformation in finance and business

In the twenty-first century, the global finance and business structure have been significantly changed by the combination of digital technology and AI. These advanced technological tools like automation, AI, cloud computing and Internet of Things (IoT) are not only changing traditional retail methods but also create the possibilities for business to make smarter and data-driven decision-making across the different industries. Digital technologies and AI have started to become the crucial component of this transformation, and businesses use these technologies for achieving real-time decision making, intelligent automation and accurate forecasting. AI is adopted by global business in the operations of companies like supply chain optimization, financial forecasting, budgeting, cost analyses, fraud detection and customer relationship management. In fact, after the adoption of AI the businesses have observed that increase accuracy of the budgeting, forecasting and cost control processes by up to 75%, and this significantly improved the strategic planning and effectiveness (Kaaouachi et al., 2025).

Additions to the core benefits of AI tools, they have also supported tasks like natural language processing, anomaly identification and risk assessment and due to these advantages, the AI driven solutions are essential for modern finance (Saduku et, al., 2022). There are other parts of the digital transformation beside AI, for instance, cloud computing is one of them and it also plays an essential role cost efficient and scalable structures, financial systems. The recent observations by the businesses show that by eliminating the necessity for large on side investments, after the adoption of cloud computing IT cost is reduced by an average of 25% over three years and it create the opportunity for the business to increase revenue with decreasing capital expenditure (Kaaouachi et al., 2025). AI-powered CRMs and chatbots are also the parts of the transformation process of digital technologies that assist with loyalty management, customer service and operational efficiency of the business strategies. Furthermore, Sofware-as-a-Service (SaaS) platforms like, CRM and POS and e-commerce systems are considered the significant facilitators of new technologies for agility and innovation in the business operations of retail sector (Oracle & ESG, 2020). IoT is another significant element in retail sector. RFID tags, smart shelves and in-store sensors are some types of technological innovation that provide real-time insight into customer movement, inventory levels and supply chain status. The result of the using of IoT in the retail sector led to an increase of the operational visibility and reduction in carbon emissions with optimizing energy use and logistics (Kaaouachi et al., 2025).

Statistical results show that the business that have adopted digital technology observed significant higher growth. There are reports indicating that revenue growth up to 58% and 80% grater profit growth in the retail business that transformed their systems into new models. These results are higher compared with the other retail businesses that are avoiding digital technologies (Oracle & ESG, 2020). The retail businesses that are rapidly adopting digital technology in all operations and taking into consideration all the possibilities are experiencing significant gains. The use of data modernization and subscription-based shopping are the main parts of transformation, and it resulted with average 12& increase in revenue in the global business over three years ((Kaaouachi et al., 2025).

Adaptation of digital technology in the retail business is becoming a more crucial step that should be considered rather than the optional variant. The retail companies are trying to integrate into the AI tools to achieve an improved version of consumer experience and long-term profitability and result with attaining cost efficiency and accurate, near to the real data forecasting. New innovative financial tools are changing the retail business models and companies are trying to survive in the competitive environment. Data incentive and dynamic business world require to integrate these new innovations into businesses to win in the comparative advantages.

Local relevance: Azerbaijan's retail sector and its role in non-oil economic diversification

Recent statistical research shows that emerging economies depend mostly on the non-oil sector, they are trying to shift their economic policies into a more sustainable economy. Sustainable economy means for the countries reducing a lot of carbon emissions in the production of oil products and overreliance on oil and gas sector. Non-oil sector is becoming a crucial part of the Gross Domestic Products (GDP) of the countries, and they have the goals for redirecting their economic policy toward to the diversified and resilient economy. Azerbaijan is one of these countries that aiming to do some strategical steps for changing their economy strategy for reducing dependance on oil sector, therefore the country starting to diversify their economy. Historically, oil and gas sector have played the crucial role the development of the economy of Azerbaijan with increasing government revenue and attracting foreign direct investment (FDI) into country. But volatility of sectors makes to change some strategies like between 2014 and 2016 years sharp decrease in global oil prices create the danger for the economy of Azerbaijan and required to make some strategical steps for decreasing risk associated with dependence of oil and gas sector. Due to the risk of such as situations, the national policy direction was crated Azerbaijan government to promote the sustainable economy growth with improving the non-oil sectors such as trade, manufacturing, logistics and especially retail sector (EY, 2022). The improvement of the retail sector is one of the goals of Azerbaijan because the resent year statistical reports indicates that the large percentage of the GDP of Azerbaijan belong to retail sector. Retail business is considered one of the main sectors for diversifying the economy and digital transformation. According to the statistical reports published by The State Statistical Committee of Azerbaijan country's GDP was consist of different main sectors. Main part of the GDP belongs to oil sector in Azerbaijan with 35,9%, while vehicle repair and trade including to the retail sector 10,7% is notable contribution to the country GDP. These numbers show that the retail sector has significant economic presence in the Azerbaijan economy and non-oil value creation will create significant improvement. Baku is one of the urban centers and especially the modern trends of retails activity like accepting digital technologies and changes the consumer habits are observed here. Furthermore, retail sectors, especially SME's, should be more ready to integrate the digital technologies into operations and customer services such as online sales platforms, regional supply chains and to achieve these new innovations the business should increase the investments in logistics, ICT and transportation infrastructure (State Statistical Committee of Azerbaijan, 2024; CESD, 2024). The policy environment of Azerbaijan is promoting the improvement of targeted legislation such as State Program on Digital Payments (2018-2020) and Law on Electronical Commerce (2005) which will lead to the more service-oriented and digital economy (CESD, 2024). The economical outcomes demonstrate that the slow growth of oil and gas sector by 0.3% in 2024, and this highlights the disadvantages of dependence on oil and gas sector and rely on hydrocarbon revenues. The statistical results require to understand the urgency of development of non-oil sector like retail and other sectors in Azerbaijan economy (State Statistical Committee of Azerbaijan, 2024). This

approach is more related to the more general global trends and the resource-rich countries try to find a way for mitigating the economic risks related to the dependence on only one sector and one of the steps of process is structural diversification. Diversifying the non-oil sector has a connection with retail sector development and this situation emphasizes the government's targeted incentives such as start-ups, non-oil exports and private enterprises. The undeniable fact is that oil sector is expected to stay the significant contributor in the GDP of Azerbaijan upcoming years but increasing the modernization and digital transformation in the retail sector will create the opportunity for revenue growth in the country. The Azerbaijan retail sector can play most crucial role in the revenue growth and increase of GDP numbers with accelerating the process of integration of AI and digital, modern, new technological innovations into sector and it will be change of traditional models with more-innovation driven, resilient, consumption-based economic model (CESD, 2024). Increase of the trade volume of non-oil sector and growth in the digital transformation are the key driver for the economic reforms of Azerbaijan government and this will assist the Azerbaijan economy to reduce the economical and structural vulnerability and reach the sustainable growth in businesses (State Statistical Committee of Azerbaijan, 2024; CESD, 2024). The retail sector of Azerbaijan is the main part of strategic role in the country economy and is playing the crucial role for GDP growth with contributing 10% and this assist to digital transformation, employment for non-oil sector and private sector development. The significant increase in numbers is becoming the driver for the economic transformation program of Azerbaijan and preparing the country to attain the financial stability after the passing to the non-oil sector development period (State Statistical Committee of Azerbaijan, 2024; CESD, 2024).

1.2. Problem Statement

Even though one of the main goals of the Azerbaijan to achieve the sustainable growth with economic diversification, the retail sector that is the key contributor to the economy of GDP faces challenges in budgeting and cost control process. The main reason of the lack of efficiency in budgeting and cost control in retail industry is historically dependence on the revenue of oil sector of Azerbaijan economy and this case has led to the structural problems in this sector beside the oil and gas, including lack of investment to the digital infrastructure, slow integration to the financial technologies, new innovational tools (CESD, 2024). These systematic problems create limitations for retail sector capacity for modernizing, updating the financial and business planning process including the budgeting and cost control steps and hindering the revenue growth for long-term period. Even though the digital transformation process has been accelerated after the COVID19 pandemic trend, but the retail sector still faces issues related to inconsistent cost control, monitoring, the lack of advanced new technological in budgeting processes and limited data driven decision-making especially by SME's (CESD, 2024). Furthermore, the limited use of AI and new innovative tools in the financial and business operations resulted with forecasting errors, loss in revenue due to the operational waste.

According to Kaaouachi et al. (2025), new innovational technological tools like AI, real-time analytics and cloud computing have already demonstrated significant improvements in global financial operations including decrease in IT costs and increase in forecasting accuracy. However, these new innovational tools are not widely used in Azerbaijan's retails sector, particularly by the SME's that control the market, but the lack of technological and financial maturity create the problem for adopting tools effectively. Additionally. The retail sector has the capacity to use AI for improving budgeting and cost control procedures, but they are still facing barriers such as resistance to digital transformation, lack of ICT expertise and inefficiency of the infrastructure.

Furthermore, the issues mentioned are not only decreasing competitiveness but also generate limitations for achieving sustainable growth in non-oil sector and higher resilience in the economics.

This master thesis will try to find the answers to some questions related to the how AI and digital can be integrated to all business processes, analyze the critical gaps in policy, academic literatures, to identify the limitations for preparing the effective budgeting and cost analyses processes in Azerbaijan's retail sector. By looking at the capacities of technological innovations and current limitations, the main goal of thesis is to suggest the effective strategies for Azerbaijan's retail sector to support the development of non-oil sector of country and increase the profitability.

Budgeting inefficiencies and cost leakages in Azerbaijani retail limiting profitability

Even though the government is trying to prepare the strategical plans to diversify the economy, but the retail sector of Azerbaijan is still facing the significant barriers to achieve profitability due to some reasons such as cost leakages and inefficiencies in budgeting. Retail businesses, specifically SME's, often have trust in traditional models of budgeting and cost control such as spreadsheet-based, static and disconnecting with real-data operations and their usage often results in the resource misallocation, forecasting errors and strategic delays (Uppatumwichian, 2020, p.2).

The limitation in use of technological innovation and integration to the financial systems such as Enterprise Resource Planning (ERP) have been shown globally to reduce overhead, improve accuracy of planning processes and match operational realities with budgeting procedures (Weerasekara & Gooneratne, 2023, p.87).

1.3. Research Aim and Objectives

Aim: To evaluate how AI and digital technologies can enhance budgeting accuracy and cost control to drive revenue growth

The primary goal of master thesis to access how innovational digital technologies, especially ERP systems and AI may improve accuracy of budgeting and cost control in the Azerbaijan's retail sector, these significant results will lead to the more agile decision-making process and sustainability of revenue growth.

Accuracy of cost control and budgeting processes are becoming critical steps in financial planning and management for operational efficiency in a volatile and competitive environment. Comparisons between traditional and modern methods of budgeting and cost control show that traditional budgeting techniques have difficulties and often struggle to handle the processes related to the rapid changes in supply chain disruptions and inflationary pressures.

The use of digital tools and AI into financial planning processes create the opportunities for unlocking value across and reducing inefficiencies across retail operations and Azerbaijan actively starts to diversify its economy beyond the oil and gas sector and promotes the adoption of technological innovations (EY, 2022).

Digital innovational technologies like machine learning, ERP-tergrated tools and predictive analytics are changing the budgeting and cost control function from reactive reporting process to strategic tool that looks forward (Oracle NetSuite, 2023). The mentioned systems not only improve the reaction time, transparency and flexibility of resource allocation but also streamlining internal reporting. The improving the management process of marketing, labor and inventory with utilizing

AI and digital technologies can have directly positive effect on the revenue performance of the retail industry where cost margins are narrow (Retail ERP Guide, 2024; PC-03-ICAI, 2021).

To anayse the current cost control and budgeting processes in Azerbaijan's retail sector and to investigate the major ineffiencencies that impete the agility and profitability are crucial steps for for this master thesis result. The diconnected financila data, foecating delays and the ractive cost control instead of proactive are all the outcomes of using the traditional tools (ICAI, 2021; Weerasekara & Gooneratne, 2023).

The one of the goal of the master thesis is to investigate how integration, automation and the real-time analitics are transforming the financila management and planning process using ERP -based digital platforms and AI. ERP-based digital tools can significantly improve scenario planning, accuarcy of forecating, decision-making process by gathering the budgetin and cost data across the various departments (PC-03-ICAI, 2021; Uppatumwichian).

Additionally, taking the interviews and getting the responses from finance experts, measuring the the perceptions and attitudes of the organizations toward adoption of digital innovations and AI in cost contro and budgeting functions are also considred the one of the aims of research. The technological advancement is not only driver for the success of digital trasformation, other factors such as change management, employee capability and culture are significantly play the crucila role in this process (Weerasekara & Gooneratne, 2023; Oracle NetSuite, 2023).

The research determining the factors that are promoting or preventing the use of technological tools and AI in financial or business operations such as adaptability of system, data availability and collaboration among departments. ERP systems are optimizing the budgeting and cost control but it also decreases adaptability in dynamic environments (Uppatumwichian, 2012).

In this research the importance of providing the strategic recommendations for companies that are operating in the retail sector related to the use of digital technologies and AI for getting better results in budgeting, cost control and financial stability. The government of Azerbaijan mainly focuses on managing of the IT investments with a primary goal of developing innovation-driven and a non-oil economy.

Research Questions

In order to achieve the main results of research objectives and aims, the following research questions are giving the direction for the master thesis.

1. How can tecnological tools and AI improve the accuracy of budgetinga and cost efficeincy in the retail sector of Azerbaijan?

This question is crucial to identify how technological tools such as predictive analytics; machine learning and automated ERP systems can increase the responsiveness and precision of financial planning processes.

2.What are the capabilities of AI-driven tools and technological innovations for increasing organizational performance and revenue?

This question analyses the cases in which digital platforms and AI not only have the contribution in cost saving process but also assist in achieving the better strategic alignment and decision-making process that are leading to the long-term revenue growth in the retail sector.

3.What impact do finance professionals perceive technological tools and AI will have on their decision-making process and roles?

The focus of this question is to explore the preparation of the organization's human-technology innovation and the skills that are needed to manage this AI automated cost control and budgeting tools effectively.

4. What are the current cost control and budgeting practices in Azerbaijan's retail sector and what limitations do the businesses face?
This question is considered crucial for identifying the weaknesses of traditional budgeting and cost control systems and this question will become the baseline for assessing opportunity and need the transformation into AI-driven tools in the retail sector.

1.4. Relevance of the Study

The increasing significancy of AI and digital technology with changing the traditional financial practices into modern structure, particularly in the areas of budgeting and cost control processes, makes this master thesis vital (ICAI, 2021; Kaaouachi et al., 2025). The use of digital technologies and AI to improve efficiency, agility and financial accuracy has become a strategically main topic as multinational businesses move more and more toward decision-making processes that are driven by big data resources (Oracle NetSuite, 2023; Maple et al., 2023).
There are two main reasons that maid this research relevant to Azerbaijan's retail sector. First point should be mentioned that one of the key contributors of employment, GDP and consumer-driven growth in Azerbaijan is retail sector. The Azerbaijan's economic strategy is to improve the non-oil sector for the upcoming government plans (State Statistical Committee of Azerbaijan, 2024; CESD).
Additionally, this research is addressing the gap of practical knowledge in business and local academic literature concerning how perceptions, application and adoption of technological tools and AI financial management and planning processes by Azerbaijani retailers (Uppatumwichian, 2012; EY, 2022). Azerbaijan is one of the emerging markets that are facing various challenges related to adoption of AI tools, however many developed countries are actively starting the integration process of AI into budget forecasting and cost control tools and ERP systems (Rivera 2025; Weerasekara & Gooneratne, 2023).
This master thesis contributes to both practical implications and academic disclosure by offering some steps should be considered for getting the effective results in budgeting and cost control processes of Azerbaijan's retail sector (Uppatumwichian, 2012). One of them is analyzing empirical insights into professionals from the finance sector use and view the digital technologies and AI tools and secondly is to give the practical suggestions for enhancing the accuracy of forecasting, cost control and budgeting with using the digital innovations (Maple et al., 2023).
The findings of this master thesis are expected to be useful for finance professionals, business leaders from retail sector and policymakers to create the integration plan of AI for the goal of Azerbaijan government to be digital competitive, growth private sector and modernizing the economy (EY, 2022; CESD, 2024).

1.5. Methodology Overview (Literature review, case studies, interviews, survey, financial reports)

This research is using the mixed method approach to give both depth and breadth in examining how digital technologies and AI are changing practices of budgeting and cost control in retail sector of Azerbaijan. The combination of both qualitative and quantitative methods in the research design let to ensure a solid understating of the topic (Johnson & Onwuegbuzie, 2024; Creswell, 2013). The semi-structured interview was conducted with IT managers and finance professionals

from the retail sector and various service sectors. The aim of the interview was to explore the challenges, perceptions and strategies related to the ERP systems and AI tools in the cost control and budgeting process. The purposing sampling techniques had been used in the qualitative method and a total of 10 interviews have been conducted.

The parallel, the online survey that is the component of quantitative method have been distributed via LinkedIn or professional networks. 30+ professionals from the IT, finance, marketing and operations departments have responded to the survey. The survey questions became the instruments for measuring readiness of digital tools, adoption, perceived effects of accuracy of budgeting and cost control. This method became the assistance for validating the ideas from interview participants who are working in various companies across the broader population. The literature review part of master thesis critically investigated practitioner and academic source connected with ERP, budgeting innovation, AI and digital transformation in retail sector (Fetters et al.,2013). Key sources included AI governance (Maple et al., 2023), ERP implementation reports (Uppatumwichian, 2012; ICAI, 2021) and reports on budgeting transformation and planning in digital finance (Oracle NetSuite, 2023).

The national statistical records and financial reports, for instance, sectoral statistics from the State Statistical Committee of Azerbaijan (2024) and the EY report "Doing Business in Azerbaijan" (2022) were reviewed to contextualize the research within the framework of Azerbaijan. This assisted in solidifying the analytical results in economic trends, local policy and sector-specific performance data.

Overall, the researcher collected data on the digital maturity of cost management and budgeting systems in Azerbaijan's retail sector, with the use of methodology that integrated the multiple data sources such as surveys, interview, literature and national reports that lead to the ensuring the results.

1.6. Thesis Structure Overview

This master thesis consists of the 5 main chapters, design of each chapter methodically examines the aim of the research, respond to the questions of research, enrich our understanding of how digital technologies and AI improve the cost management and budgeting in the retail sector of Azerbaijan.

Chapter 1-Introduction: In this chapter, the background and context of research, steps outline the problem statement, defining the aim and objectives of the research and presenting the research questions. It also gives an explanation about the significance of study, provides a brief overview of the methodology and ends with the structure of the thesis.

Chapter 2-Literature Review: The researcher critically assesses the existing industry and academic literature on cost control, budgeting and digital transformation in the retail sector. The main discussion of this chapter is analyzing the advantages of alternative budgeting techniques, the global development of ERP systems and AI and current level of digital adoption in Azerbaijan's retail sector. Additionally, the chapter discusses the main gaps in the research process and theoretical framework is presented for supporting the study.

Chapter 3-Methodology: This section describes the mixed-method approach which consists of survey and semi-structured interviews that are the data collection techniques for evaluating retail budgeting, digital transformation and cost management.

Chapter 4- Results and Discussion: Findings from the surveys and interviews are presented in this chapter focusing on some key points such as perception and adoption of digital technologies and

AI. In addition to the trends mentioned the section discusses the effects of technology and AI on forecasting accuracy, revenue increase and operational efficiency. Based on outcomes, strategical recommendations are presented.
Chapter 5- Conclusion: The last chapter provides an overview of research findings, answers to the research questions, and summarizes the practical and academic contributions of thesis. Additionally, this section also talks about the research limitations and offers various suggestions for future research.
These chapters collectively provide a coherent and comprehensive analysis of technological innovations and AI in cost control and budgeting, offering practical guidance and theoretical understanding for Azerbaijan's retail businesses undergoing digital transformation.

2. Literature Review

2.1. Budgeting and Cost Control in Retail

Importance of Budgeting and Cost Control in Retail Operations

In the retail sector, cost control and budgeting are critical for staying competitive, ensuring profitability and responding effectively to the rapid changes in the market. Unlike other sectors, retail industries have a narrow profit margin therefore experience frequent shifts demand of the product, consumer behavior, supply chain dynamics. Thus, discipline in operations and strategic financial planning are not only recommended but also essential for sustainable growth and survival (Akkani, 2024; KPMG, 2023).
The starting point of financial planning is the budgeting process, that consists of some steps such as setting expenditure limits, defining revenue targets and allocating resources according to different product categories or departments. This process assists the various businesses for monitoring actual results against plans, forecasting the sales and making the necessary corrections. Facilitation of internal control is not only the function of budgeting process but also it enables strategic goal alignment and cross-functional coordination (ICAI, 2021; Weerasekara & Gooneratne, 2023).
On the other hand, the cost control that is facilitating and improving the budgeting by ensuring the expenditure remains within predetermined limits. Efficient cost control systems allow organizations to identify cost leakages, follow variances and correct inefficiencies. Retail businesses, for instance, utilize these tools to manage logistical expenses, discounts, promotional spending and inventory shrinkage. Accuracy of cost monitoring also improves profitability assessment for all product categories and pricing strategies (Maple et al., 2023; CESD, 2024).
In this regard, the ERP systems of retail industries have started to become vital. They provide real-time visibility into sales, procurement, inventory and financial data, thus improving the accuracy and timeliness of budgeting and cost control. By automating routine processes like variance analysis, budget creation and cost tracing ERP platforms allow the managers to focus on strategic decisions by reducing manual errors (IJM, 2024). Retail businesses may increase consumer responsiveness and agility by using tools like FACT.ERP.NG that provide outlet-level reporting, dashboard-based profitability overview and e-commerce platform synchronization.
Additionally, digital platforms have significant contributions for reducing administrative burden. According to the reports, return on investment can be improved by ERP solutions through data integration and automation while lowering administrative and operational costs by more than 20% (Datix, 2024). Furthermore, the use of predictive analytics and AI solutions improves the accuracy

of budget forecasting which is especially beneficial in markets with seasonal fluctuations and volatile demand. Retail businesses can make the decisions in real time, reduce the risk of currency fluctuations, supply chain shocks and economic disruptions thanks to the shift from static to dynamic financial planning tools (Oracle NetSuite, 2023; Rivera, 2025).
Cost control and budgeting processes in the retail sector are now integrated, ongoing and data-driven processes rather than static financial exercises. Their effectiveness directly influences customer satisfaction, operational efficiency and overall business sustainability.

Conventional Financial Planning Methods in Azerbaijan

In Azerbaijan, various industries including retail are using the traditional approach in budgeting and cost control that has historically depended on top-down, static method like spreadsheet-based forecasts and incremental budgeting. Using these practices doesn't create big challenges in the stable economic environment but today's volatile and dynamic retail conditions require to use modern technology to get efficient results (ICAI, 2021; Weerasekara & Gooneratne; 2023).
The most retail companies in Azerbaijan specially SMEs continue to use annual planning budgeting cycle that are based on historical performance instead of using predictive analytics and real-time data. At the start of the year, the line-item estimates are collected from all departments for planning the yearly budget and the next step is combining all the data at a corporate level. In the fast-changing retail industry, using the incremental method may result in lost opportunities and inefficiencies because this method assumes that historical data according to the past performance of the company is a reliable predictor of future performance. Additionally, the finance department is responsible for centralizing the budget items due to the limited cross-functional input. The limited collaboration among the different departments such as finance, marketing and operation results in difficulties in responding to quick changes in the market and ineffective decision-making. Furthermore, the lack of integrated planning tools exists in many businesses, thus variance analyses, budget adjustments and forecast updates are done by reactively or hand (PC-03 ICAI, 2021; Oracle NetSuite, 2023).
The absence of reliable ERP systems in the majority of SMEs of Azerbaijan lead to these constrains. Without digital platforms, centrally managed, financial data is managed through ad hoc processes and scattered across systems, thus this situation increasing the time required budget cycles and reduces accuracy (Retail ERP Guide, 2024; IJM; 2024).
Although, most Azerbaijan's retail chains have start to implement closed-base accounting platforms and ERP systems, still lack od integration remains. Due to the gaps in employee digital literacy, lack of ICT infrastructure and lack of internal change management techniques, many of these systems are not fully utilized (EY, 2022; Rivera; 2025).
The outcome of the underutilization is that even digitally advanced companies continue to rely on traditional methods, this minimizes potential advantages of real-time data, automation and predictive modeling. Moreover, performance evaluation in conventional budgeting trend of Azerbaijan typically focuses on short-term financial compliance rather than long-term strategic results. KPIs of the industries frequently associated with following the budget rather than cost optimization, innovation and long-term value creation, further reinforcing static planning culture and a risk -averse (Weerasekara & Gooneratne, 2023).
The traditional method of financial planning in Azerbaijan's retails sector are characterized by centrally, static, manual controlled procedures that limit strategic agility. These traditional methods are becoming less effective as global trends shift toward AI-driven, dynamic rolling

budgets and forecasting. This highlights the urgent need for capacity building and digital transformation in retail finance function of Azerbaijan (Uppatumwichian, 2012; ICAI, 2021; CESD, 2024).

Challenges of Traditional Budgeting in Volatile Markets

When the retail businesses apply traditional methods like incremental planning and fixed annual budget into their operations it presents serious drawbacks in today's fast evolving and volatile retail environment. In the developing economies like Azerbaijan, where inflationary pressures, economic volatility and changes of the consumer behavior require more data-driven and flexible financial responses, this challenge is especially apparent (ICAI, 2021; Rivera 2025).

Rigidity is considered one of the main challenges of traditional methods.

Budgets are usually prepared once a year, but cannot concentrate on external economic shocks, changes in demand and cost. In the retail industry, where the market conditions change quickly due to geopolitical instability, seasonality or supply chain disruptions, this rigid strategy often leads to show the not real-time realities (Weerasekara & Gooneratne, 2023; Akkani,2024).

Furthermore, shifts or inefficiencies in strategic priorities cannot be solved by incremental budgeting that is based on previous year's data plus increase of percentage. It maintains outdated expenditure patterns and promotes silos within departments, rather than aligning with broader business objectives and driving innovation (Uppatumwichian, 2012; ICAI, 2021). This situation may result in the misallocation of resources, especially conducting the business during unpredictable economic times where agility is essential.

A further disadvantage is the excessive dependence on manual data gathering and spreadsheet modelling which causes the possibility of lower accuracy, human mistakes and delays the release of financial data. In Azerbaijan many retail businesses continue to use planned tools that are Excel-based, and these tools are not connected with other business operations, and it results in challenge to balance financial goals with operational realities (Retail ERP Guide, 2024, Oracle NetSuite, 2023).

Traditional approaches often fail to include real-time adjustments and scenario planning, which start to become more crucial in the finance of the retail sector. Retail businesses consider it more complicated to plan for taking the advantages of new opportunities and risks when they use fixed budgets since they are unable to test multiple economic projections and simulate various business scenarios (Jain & Kulkarni, 2023, Rivera 2025).

Additionally, being reactive rather than proactive leads to the issues for cost control based on the traditional method. Instead of allowing early discovery of revenue deficits and expense overruns, static budgets typically focus on the problems only after they have happened with using the conducting the weekly or monthly variance analysis. For retail companies have intense competition and narrow profit margin, this delay can cause detrimental effects (Akkani, 2024; BCG, 2024).

Cross-departmental cooperation is prevented by the absence of real-time visibility or integrated planning, which are critical for coordinating logistics, marketing and procurement decisions with budget targets. Retail businesses are not able to make data-driven and quick decisions in the times of market shifts or crises when the operational and financial data are kept separate (ICAI, 2021; Maple et al., 2023).

Macroeconomic volatility, such as variable import prices, inflation and fluctuating currency rates, especially in Azerbaijan, seems to traditional budgeting even more difficult. Local retailers

struggle to maintain strategic responsiveness and financial management in the absence of advanced tools for dynamic forecasting and risk-adjusted planning (CESD, 2024; State Statistical Committee of Azerbaijan, 2024).

Retail is one of the unstable sectors that require more advanced technological tools and modern techniques for being effective in the market. The need for transformation into more technology-driven, predictive budgeting and agile methods is highlighted by their static nature, incapacity and reliance on manual inputs to adjust to external shocks (Rivera, 2025; Oracle NetSuite, 2023; ICAI, 2021).

According to the ideas of ERP experts, without continuous forecasting capabilities and integrated planning tools, businesses struggle to adjust priorities or reallocate resources in response to unforeseen challenges (Planning & Budgeting, 2023).

2.2. Digital Transformation in Finance and Retail

Digital transformation of business and finance of retail sector is reshaping how organizations budget, plan and control expenses. New technologies such as RPA, AI, ERP systems and fintech platforms have become essential for facilitating accuracy, operational integration and agility as businesses aspire to function in increasingly changing environments (Maple et al., 2023; Oracle NetSuite, 2023).

Global trends in ERP, AI, RPA, FinTech in financial management

Globally, all business operations are transformed from paper-based, reactive models to automated, data-driven and proactive systems with the assistance of integrating digital technologies into the sector. AI increasingly used for predictive analytics, anomaly detection, automated financial planning which allowing the businesses to react to real-time market changes (Kaaouachi et al., 2025). ERP systems such as Oracle NetSuite and SAP S/4HANA provide complete visibility across operational and financial data, improving decision-making speed and planning accuracy (PC-03 ICAI, 2021). By automating rule-based and repetitive financial operations like compliance checks, invoicing and reconciliations, RPA enhances these systems. Finance professionals can focus on strategic analysis because of the improved auditability and decreased manual workload (Maple et. Al., 2023). By combining AI-based credit scoring systems, digital wallets and payment gateways that enhance streamline transactions and customer experience, FinTech platforms are rapidly transforming the delivery of financial services (OECD, 2024).

Zero-Based Budgeting, Activity-Based Costing, Rolling Forecasts

New innovative tools have enabled the improvement of budgeting and cost control methodologies. Managers try to justify all the expenses from zero each budgeting cycle because basing the expenditure on past years leads to ineffective outcomes. This method integrates expenditures with strategic objectives, promotes cost efficiency and reduces budget inflation (Planning & Budgeting, 2024). Through digital platforms, pre-configurated and automated budget templates have enabled the time-consuming ZBB procedures to be more possible.

Activity-Based Costing (ABC) is one of the advanced methods that allocates overhead expenses to specific activities according to their utilization of resources. This budgeting method is facilitating investment decisions and better-informed pricing by offering clarified insights into cost elements (Uppatumwichian, 2012).

Organizations can more precisely link operational data and map resource flow to financial results by incorporating ABC models into ERP systems. On the other hand, rolling forecasts is used by companies for providing continuous planning cycles with revising regularly during the fiscal years. Compared with static annual budgets, rolling forecasts allow the businesses to react rapidly to internal performance trends and market changes. Particularly in volatile sectors such as retail, this approach reduces the risks related to the out-date estimates and improves agility (Weerasekara & Gooneratne, 2023). Combination of mentioned methodologies into-cloud systems is facilitating cooperation among the departments, fostering the culture of accountability and improving forecast granularity.

Smart Cost Control, Forecasting and Budgeting tools (e.g., SAP Analytics Tools, IMB Planning Analytics)

Smart forecasting and budgeting tools represent the most technologically advanced phase of digital financial transformation. Platforms such as SAP Analytics Tools and IBM Planning Analytics integrate machine learning and AI with conventional business intelligence to deliver predive insights and automate key financial procedures. For instance, SAP Analytics Cloud facilitates multidimensional financial modeling, real-time KPI tracking and automated variance analysis.

It gathers data from various sources helping the managers make better decisions with generating meaningful insight on demand (SAP Retail Report, 2024). In a similar vein, IBM Planning Analytics uses AI to produce rolling forecast, automate allocation perform scenario simulations, reducing dependency on manual calculation and spreadsheets (Oracle NetSuite, 2023).

In the retail sector, where forecasting should take into consideration the changing consumer trend, the impact of promotions, seasonality and inventory turnover, these systems mentioned are very crucial. Originations can increase cooperative planning, transparency and forecast accuracy planning amongst marketing, finance and other departments by substituting cloud-based, integrated systems for conventional tools. Financial management recently experienced a paradigm shift as the result of digital transformation, giving organizations access to networked, intelligent and flexible technologies. FinTech, ERP, AI and RPA not only streamline operations but also make it possible for forward-looking strategies that are vital in today's uncertain and competitive environments. To fully get the benefits of these new innovational tools, Azerbaijani retail companies should try to match organizational capacity with digital strategies.

2.3. Integration of AI and Technology

Emerging of the AI and digital technologies have become the center of transformation of modern retail operations and financial management. AI makes adaptive, predictive and real-time financial planning possible in the context of cost control and budgeting, especially in the rapidly changing industries such as retail. Through the data-driven tools and intelligent automation, organizations can make strategic decisions with greater speed and accuracy, reduce human error and improve operational efficiency.

AI Applications: Inventory Optimization, Fraud Detection, Dynamic Pricing and Deman Forecasting

AI-based demand forecasting is using large datasets- including customer behavior, market dynamics, historical sales and weather trends-to give the high accurate predictions according to

the consumer needs. Retail sectors are using these forecasting methods to optimize supply chain flows and warehousing, reduce understocking and overstocking and align procurement with expected demand (Uppatumwichian, 2012, Retail Industries, 2024).
Inventory Optimization is considered as another critical area where has transformed conventional methods.
Machine learning models assess shelf-life dynamics, seasonal variations and product turnover rates to improve turnover rates, recommend real-time adjustments and minimize holding costs
(ERP Features of Retail Businesses, 2024). At the same time, dynamic pricing tools powered by AI are providing the assistance for analyzing stock availability, market competition and consumer sensitivity to maximizing revenue, modify price automatically while remaining competitive (IJM, 2022).
AI based technologies have also significantly improved fraud detection in the retail sector, especially with the recent increase in digital transformation. AI models use pattern recognition techniques and anomaly detection to identify irregularities in real-time and suspicious transactions and the result of these businesses in the retail sector can response proactively to financial risks (Maple et al., 2023). In the high-volume environment, tools mentioned assist in safeguarding accuracy of consumer data and financial reporting.

Global Adoption Trends and Case Examples

AI and digital tool adoption in the global retail sector has grown quickly, with main international organizations integrating tools mentioned across customer-facing services, operations and finance. For instance, Walmart, that is one of the leading retail companies in the world, started to utilize AI for automated pricing strategies, robotic shelf scanning and real-time inventory forecasting. Amazon applies AI extensively personalized product recommendation, dynamic warehouse and logistics resulting in customer engagement and operational efficiency (Retail Industries, 2024).
Over 50% percent of global retail companies, according to the report of BCG (2024) have integrated AI based tools into not less than one core function of businesses- including financial planning, consumer analytics and supply chain management. Furthermore, widespread ERP platforms such as OracleNetsuit and SAP S/4HANA now include integrated AI features that allow scenario planning, variance analysis and forecasting, unified platform (Oracle NetSuit, 2023; PC-03 ICAI, 2021). The cases mentioned show that AI may foster strategic agility in rapidly changing environments while also improving cost control and budgeting processes.

Challenges and Statues of AI adoption in Azerbaijan

Despite of the fact in the developing economies like Azerbaijan show the sign of emerging growth in adoption of AI tools into financial and business operations but remain in an early stage. Most SMEs confront significant obstacles although large organizations and telecom companies have started experimenting with AI-powered and ERP solutions. These include limited access to experienced IT specialist, high implementation costs, fragmented data infrastructure and resistance organizational changes ((Uppatumwichian, 2012, Weerasekara & Gooneratne, 2023).
The lack of incompatibility of modern ERP platforms and legacy systems large-scale integration is even more complicated. Furthermore, local businesses are not adequately informed about critical and strategic benefits of AI in proactive cost control, financial forecasting and budgeting accuracy (Planning & Budgeting, 2024; CESD, 2024).

Retail industries still need further capacity building programs, investment incentives and institutional support to enable widespread acceptance, even though e-commerce laws and national digitalization strategies, such as State Program on Digital Payments and Law on Electronic Commerce, have laid the foundation for future development (State Statistical Committee of Azerbaijan, 2024; CESD, 2024).

Workforce reskilling in ERP and AI usage, public-private collaboration and phased implementation strategies are all essential for bringing Azerbaijan's retail industry closer to digital maturity. The adaptation AI tools not only represent a technical transformation but also create the necessitates a cultural transformation in how operational and financial decisions are approached within the business environment of Azerbaijan.

2.4. Theoretical Framework and Research Gap

Combining Dynamic Capabilities Theory (DCT) with Technology-Organization- Environment (TOE) framework allows for an effective analysis of how digital technologies and AI are integrated into cost control and budget procedures in the retail sector. These frameworks enable an extensive investigation of how strategic decision-making requirements, internal skills and external circumstances affects the adoption of technology in rapidly changing environments such as retail sector of Azerbaijan.

Theoretical Framework

The most well-known framework for analyzing digital transformation in the organizations is called TOE than means Technology-Organization-Environment and this framework was created by Fleischer and Tornatzky in 1990.

Perceived limitations and benefits of AI tools RPA, ERP and predictive analytics in improving effectiveness of cost control and budgeting accuracy include into technological context. From the perspective of organizational context should be considered internal factors such as structure, leadership commitment to innovation, digital literacy of employees and company size. Environmental context contains competitiveness, market volatility and regulatory pressors that are especially significant for emerging economies such as Azerbaijan. The frameworks are playing crucial role for assessing barriers and readiness related to the adoption of AI and digital innovations faced by Azerbaijan's retail organizations and most of them SMEs that are operating in an unpredictable economic environment (CESD,2024; Weerasekara & Gooneratne, 2023). Complementing this, DCT introduced by Shuen, Pisano and Teece (1997) provides the framework for examining how businesses reconfigure routines and resources to obtain competitive advantage in dynamic environments.

1. Methodology

To ensure effective and detailed analysis, this thesis used a mixed-methods approach, combination of qualitative and quantitative data. In this master thesis 50 professionals from different departments such as IT, finance, marketing, and HR have participated in the survey to support the quantitative findings and semi-structured interviews with finance and IT executives (Johnson & Onwuegbuzie, 2004, Creswell, 2013).

3.1. Research Design (qualitative, quantitative, or mixed methods)

The thesis is using a mixed-methods research methodology with combination of quantitative and qualitative approaches for providing the deep understanding of how digital innovational technologies and AI are transforming the cost management and budgeting procedures in Azerbaijan's retail sector. The use of the mixed-method research methodology is suitable for this thesis because it enables both in-depth analyses of more broadness (via survey analyses) and expert viewpoints (via interviews) on results, challenges and adoption of the AI and tectological innovations in financial planning processes (Plano Clark Creswell, 2018).

Semi-structured interviews have been conducted with experts from finance and technology departments within the leading companies across the non-oil and retail sectors. Taking interviews not only with experts in the retail sector, will provide more detailed and comparable analysis of the budgeting and cost control procedures. Furthermore, giving the freedom to interview and survey participants to share their ideas allows researchers to record detailed observations, contextual observations and real-world practices of technological innovations and AI use in budgeting and cost management procedures (Braun & Clarke, 2006; Kvale, 2007). Conducting semi-structured interviews is an especially effective way to identify different scenarios, perspectives and sector specific barriers related to the adoption of digital technologies and AI tools. As a result, the researcher is trying to find a balance between open-ended and structured responses to the questions.

The component of qualitative method is an online survey prepared via Google Forms, and it has been shared with the broad group of experts from different departments in various retail and non-retail companies in Azerbaijan, including those from IT, finance and other departments (Creswell, Fetters & Curry, 2013). The shared survey consists of both multiple-choice and closed- end questions designed to measure the level of AI tool adoption, organizational preparedness digital transformation and perceived performance. This section of master thesis assists with determination and findings from interviews, and it gives a broader statistical view of patterns to researchers.

Overall, this master thesis method supports the compared analysis that ensures the depth and accuracy of findings. The integration of quantitative results and qualitative ideas not only gives direction for research exposing challenges and patterns but also offers practical and effective pathways for increasing cost effectiveness and budgeting accuracy.

3.2. Data Collection (expert interviews, surveys, financial data analysis)

This master thesis identify that how digital innovations and AI are affecting cost control and budgeting process in Azerbaijan's retail sector with using the dual data collection method that consist of both qualitative and quantitative methods (Patton, 2002). These hybrid techniques provide a deeper understanding of expert opinion while also using a large sample of professionals in related fields.

3.2.1 Qualitative Data Collection: Semi-Structured Interviews

In this master thesis the qualitative data was collected through semi-structured interviews with chosen budget analysts, finance professionals and technology managers who are working in different sectors, including non-oil and retail. The interview was conducted with 10 experts,

depending on the availability of the interview participants, which was carried out in written format or via video calls and it lasted roughly 20-30 minutes. According to the participant's option, the interviews conducted in English or Azerbaijani, if choose Azerbaijan language it had been translated into English.
The interview questions were prepared detailed for covering the key topics like current digital tools, budgeting and cost control challenges, perception about the capacity of AI, preparedness for digital transformation and obstacles to adoption. Open-ended questions are effective for getting comments about the specific practices from the respondents (Kvale, 2007).
The purpose of the research has been shared with all interview participants, the confidentiality of the answers be assured by the interview taker and the consent form has been signed by the participant.

3.2.2 Quantitative Data Collection: Online Survey

Additionally, the structured online survey has been shared with a broad group of samples that was prepared in Google Form. Professionals who are working in finance, IT, operations and other departments in Azerbaijan especially who work in retail sector have been targeted for filling the survey. The survey consists of 30 questions including multiple-choice and optional open-ended formats covering the main topics that are significantly effective for getting the effective results such as use of AI tools, effectiveness of technological innovations, perceived challenges and readiness of the organization. The survey was shared with email, LinkedIn and professional networks and in the result 50 respondents completed the survey. Google Form made the possible to gather efficient data and real-time monitoring. After collecting the survey responses, the results were exported to Excel and visual format to identify the trends and enable us to show comparisons with interview data.

3.3. Sample Selection and Participants

This master thesis deliberately employed the sampling to find and engage respondents who have direct real working experiences with financial planning, cost control, budgeting and technological transformation within their companies. The focus of master thesis is cost control, budgeting and Ai implementation; therefore, it was the significant to target the respondents who are directly playing the crucial role in financial management and decision-making process (Palinkas et al., 2015).

3.3.1 Interview Participants

A total of 10 participants participated in the interview stage representing the various sectors like the retail sector and non-retails sector telecom, consulting, FMCG. The interview participants are working in the key positions as finance manager, IT managers, budgeting analytics and cost controllers and their ideas represent the operational and strategical perspectives of financial planning. The diversification of industries and roles not only allowed us to find sector-specific challenges, but also cross sector patterns related to cost control, budgeting and AI adoption. The choosing process of interview participants based on relevance to the research topic, professional expertise and willingness to answer the questions.

3.3.2 Survey Respondents

The survey is the component of quantitative method that was shared with professionals who are working in IT, finance and operations in different companies especially in retail sector of Azerbaijan. The criteria for participating in the survey is to have at least 1 year working experience in the different departments and familiarity with AI and digital innovations that are used in financial and business operations.
As the result of the survey, 50 responses from participants were collected. Participants in the survey are working in various types of organizations, such as retail and non-retail sectors such as telecom, constancy or manufacturing, and these differences of the sector allowed the researcher to do deep analyses of budgeting and cost control patterns related to the AI and digital transformation. Despite the small sample group have participated in the survey, the results became sufficient to detect the common trends and compare the findings from the qualitative interviews.
In this research the targeted sampling approach made sure that gathered data was rich and relevant, and these results had a contribution to the reliability of master thesis finding.

3.4. Data Analysis Techniques

This master thesis used the method that consists of two-phase analyses. The combination of thematic coding of qualitative approach for interview data and visual form of statistical analyses for survey results. The methodological combination of qualitative and quantitative approach enabled both the analyses of in-depth professional's viewpoints and identification of general patterns across a wide range of respondent bases.

3.4.1 Qualitative Data Analysis: Thematic Coding

The data that had been collected from the interview process was analyzed using a popular method for examining, finding and reporting trends. After transcription, the responses from the participants were examined to identify the insights related to the impact and adoption of AI and digital innovations on cost control and budgeting processes.
In this thesis the combination of indicators was used for analyzing the responses. Key words for instance, "cost optimization trough RPA", "Interdepartmental communication gaps", "ERP inefficiencies" etc., were developed naturally, while in the interview process such as "budgeting challenges", "AI impact", "digital readiness" and "barriers to adoption" etc. developed based on the guide of interview.

3.4.2 Quantitative Data Analysis: Descriptive Statistics

The descriptive statistical method had been used according to the survey data to summarize distribution and frequency of the survey participant's responses across the significant variables. The following step is exporting data from Google Forms and visualizing the data with charts (such as pie charts or bar graphs) for showing the results related to the effectiveness of AI and new technological tools and preparedness of the organizations to adopt them.
The general view toward AI and digital innovations is analyzed with collecting data preparing Likert-scale questions, while using multiple-choice questions assist to show current budgeting methods and operating procedures. Connection between variables (such as comparing level

experience or perceptions across the departments) were checked with using cross-tabulation where applicable.

3.5 Ethical Considerations

One of the main principles of research is ethical integrity. The interview process and survey in master thesis have the academic requirements related to the confidentiality, anonymity of the participant and the consent form had been shared with participant for signing voluntarily.

3.5.1 Informed Consent

All participants of the interview were provided with the purpose of the master thesis, which types of questions will be required to answer, and how the responses will be collected. The consent form has been shared with the sign of the participant via mail or paper form after sharing with them. Confirmation of the participants are collected for attending the interview process and they had informed that their responses will be used for academic purposes.

3.5.2 Anonymity and Confidentiality

No job titles, specific names or participant name were mentioned in the master thesis for protecting confidentiality according to the academic requirements. The researcher only had the access the confidential survey data and transcripts. The general name of roles had been recorded in the thesis such as “finance manager in retail sector” for security purposes.

3.5.3 Data Security and Storage

The types of digital records such as audio files, interview transcripts and survey responses wre saved in one file on a password-protected computer. All the protected data will be safely saved for the time required by academic regulations of university and then will be securely deleted.

3.6 Limitations of the Methodology

Although this master thesis provides the significant ideas about the roles of digital technologies and AI in the cost control and budgeting process of companies in Azerbaijan’s retail and non-retail sector but there are several methodological limitations should be mentioned for getting the effective results.

3.6.1 Sample Size and Representativeness

The qualitative component of the master thesis is based on 10 semi-structured interviews that is full of detailed information, but it couldn’t reflect all the experiences of the professionals in Azerbaijan’s retail sector. Limitations of the survey method are like the interview, the professionals from different departments of the organizations are not able to participate, because it is impossible to share the survey with all of them. There are a lot of findings but because of such limitations, they are not able to generalize to the wider group of finance professionals and a broader range of sectors.

3.6.3 Information Self-Reported

Information of the qualitative and quantitate methods relies on self-reported data that can create biases like overestimation of the organizational potential, social desirability and selective recall.

3.6.2 Sectoral and Geographical Attention

Th primary focus of master thesis is organizations operating within Azerbaijan, that can generate the limitations for applying of the findings to various regions and countries due to the economical, technological and regulatory conditions. Furthermore, while choosing interview participants from retail, telecom and consulting sector due to their digital maturity and relevance provided effective results, but the lack of input from other sectors such as manufacturing and public sector companies made the restrictions for sectoral comparison.

3.6.4 Time Limitations

The time for writing the master thesis was limited. As the result of this situation, more detailed fieldwork, like taking the interviews from more participants, follow-up focus groups and comparing the more similar cases didn't become possible. Additionally, the limitation of the time generated the constraints for possibility of validating results with cross-national comparisons and follow-up interviews.
Despite the limitations, the significant results master thesis offers realistic and content-specific view of AI and innovational technologies are changing the cost control and budgeting practices in Azerbaijan. The findings of research may assist the other researchers to write future research with being the useful foundation to analyze sectoral and geographic scopes and larger samples.

4. Results and Discussion

4.1. Overview of Azerbaijan's Retail Sector

Over the past 20 years, after the Soviet period Azerbaijan gain the economic liberalization and started to urbanization and consumer-oriented market has been created, these processes had substantial impact on retail sector of Azerbaijan. Initially dominated by small shops by families and traditional bazaars, the sector has developed into a more contemporary and organized retail environment, especially in Baku, than is one of the urban centers. The expansion of franchise models, supermarket chains and shopping centers are a reflection of growing demand for consumer products and shifting customer preferences. Araz Supermarket MMC, Bravo MMC and BazarStore MMC are the key players in the retail ecosystem of Azerbaijan, while there are international franchises like LC Waikiki, Mc Donald's etc. in the country that are playing the crucial role in supply chain networks, pricing dynamics and shaping consumer access in the country. However, SMEs still dominate face and number limitations in adaptation of limitation and digital maturity (CESD, 2024; EY, 2022).
In spite of consistent expansion, the sector is still facing obstacles and challenges such as lack of investment in retail-specific digital infrastructure, dependency on imports and fragmented supply chains. Furthermore, inflationary pressures, currency fluctuations including macroeconomic volatility create instability in cost forecasting and pricing strategies. Retail sector of Azerbaijan also suffers from inefficiencies in cost control and budgeting due to manual processes and legacy

systems, particularly in SMEs that is the significant portion of the market (Weerasekara & Gooneratne, 2023; State Statistical Committee of Azerbaijan, 2024).

Historical development, structure, key players, challenges

4.2. Findings from Case Studies, Interviews, and Surveys

According to the interview and survey results most retailers in Azerbaijan continue to rely on traditional budgeting methods. Few companies are using scenario planning and rolling forecast, and Excel plays the dominant role in the annual budgeting process. The lack of cross-functional collaboration led to limited input from various departments and most of the time budgeting planning is centralized within finance departments. Totally 10 interviews had been conducted, 7 respondents mentioned limited connection between IT and Finance departments and manual cost tracking. Revisions of budget were described as mostly reactive and unusual. Most of the companies have implemented ERP systems including Oracle and SA, while the rest of the companies still use disjointed systems that cause multiple errors in the operations. Interviews from professionals across the IT and Finance departments displayed cautious optimism related to the adoption of AI. Most of the interview participants agreed that AI-based tools could identify hidden inefficiencies in costs, reduce manual workload and improve forecasting. However, they still have concerns related to the high investment costs, lack of skilled professionals and data readiness.

Respondent Profile and Organizational Context

According to the survey results 50 participants from various departments have responded to the questions. Half of the participants are employees of the finance departments, while the rest were distributed across Marketing, HR, Procurement, Logistics, IT and Operations. The majority of respondents roughly 78% have experience in their current departments for more than 4 years and it means that they have mature operational knowledge and their insights are valuable for the cost management and budgeting processes.

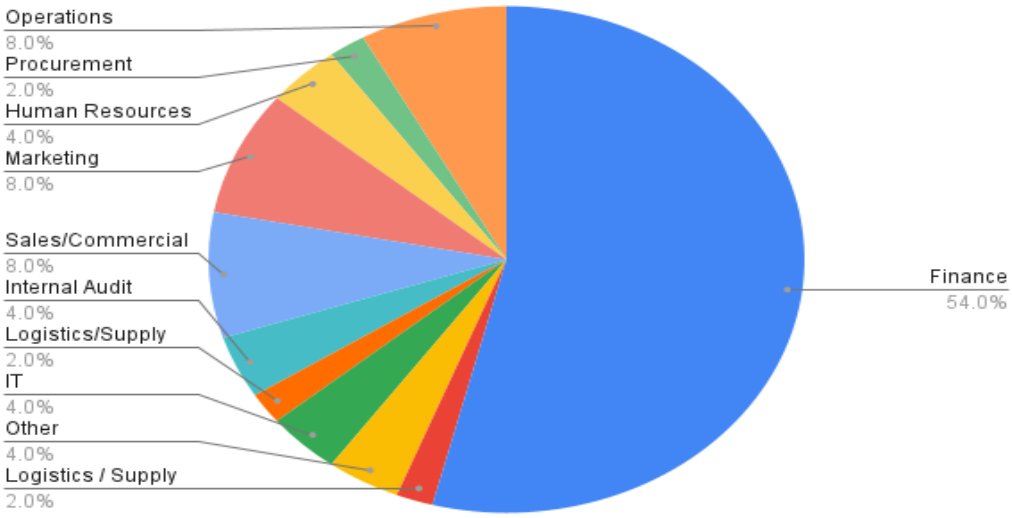

Figure 1. Respondents by Department

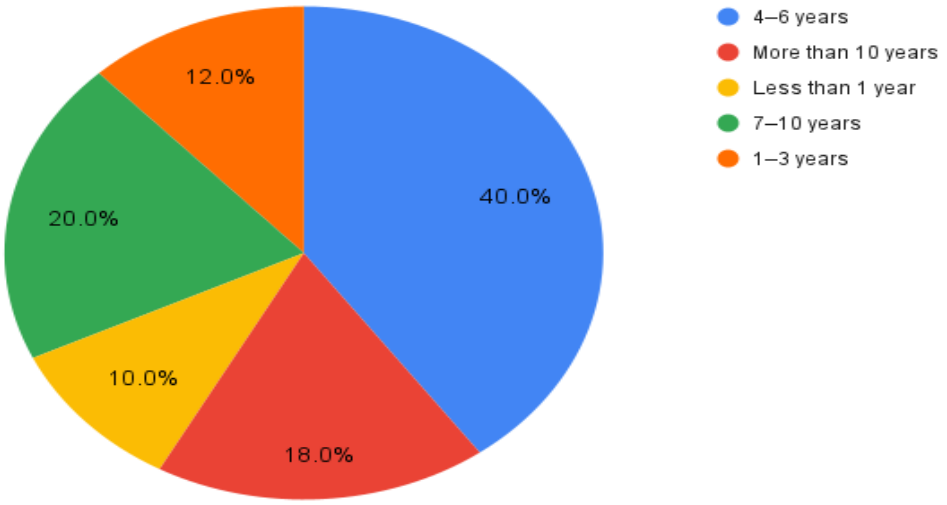

Figure 2. Years of Experience in Department

Approximately 60% of participants working in large companies have 1000+ employees. The dominant retail formats included electronic retail (16%), fashion (24%) and supermarket/ hypermarket (26%). Other categories and non-retail sector are represented with 26%, this result reflects that cost control and budgeting practices beyond the traditional store operations were also reflected in the survey.

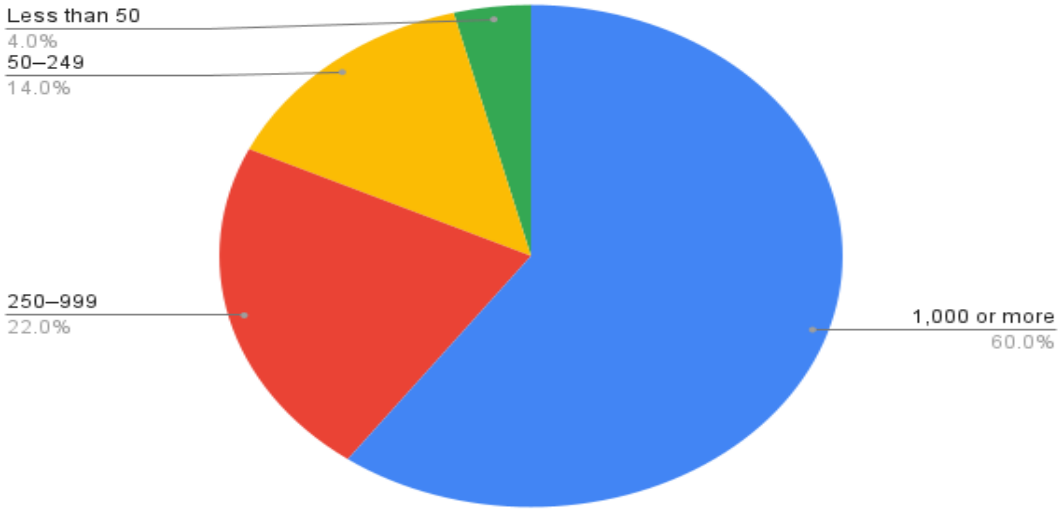

Figure 3. Company Size by Number of Employees

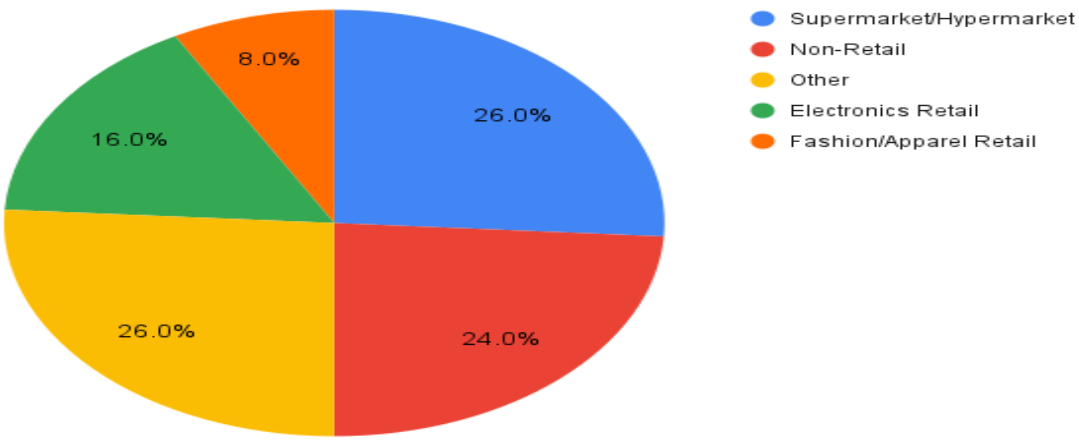

Figure 4. Type of Retail Business

Current Budgeting and Cost Control Practices

The survey results showed that the most popular approaches are zero-based budgeting and annual fixed budgeting, each used by roughly 49% and 51% of companies, respectively. Activity-based costing and rolling forecast are other used methods considered by respondents as well-known with 16,3 and 10,2 percentages respectively and results suggest that partial dependence on performance-linked and flexible budgeting techniques.

Excel continued to be the dominant among the technological budgeting tools, with roughly 80% of respondents using this tool for their budget and cost operations. The following places belong to ERP systems including SAP and Oracle (66%). The critical point should be focused on the fact that only 4% of survey participants noted that they are using AI-powered tools in their budgeting process. These respondent results show a significant technological gap related to the AI-based tools. This finding provides the idea that the business still doesn't have clear information about the potential of AI-based technological tools.

However, 4 points out of 5 have been given by the respondents for their accuracy of cost control and budgeting systems with 56 % results, it means they believe that the system is moderately reliable, but only 16% survey participants rated their systems as highly accurate. According to the findings, majority of companies review their budget monthly or quarterly by approximately 36,7% and 42,9% respectively and show that there exists moderate responsiveness to the dynamic market changes.

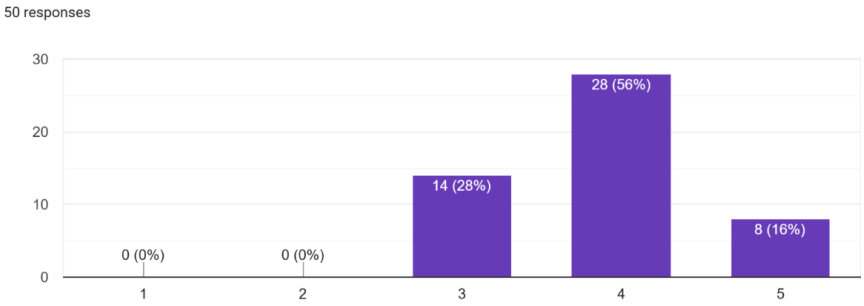

Figure 7. Accuracy Rating of Budgeting and Forecasting

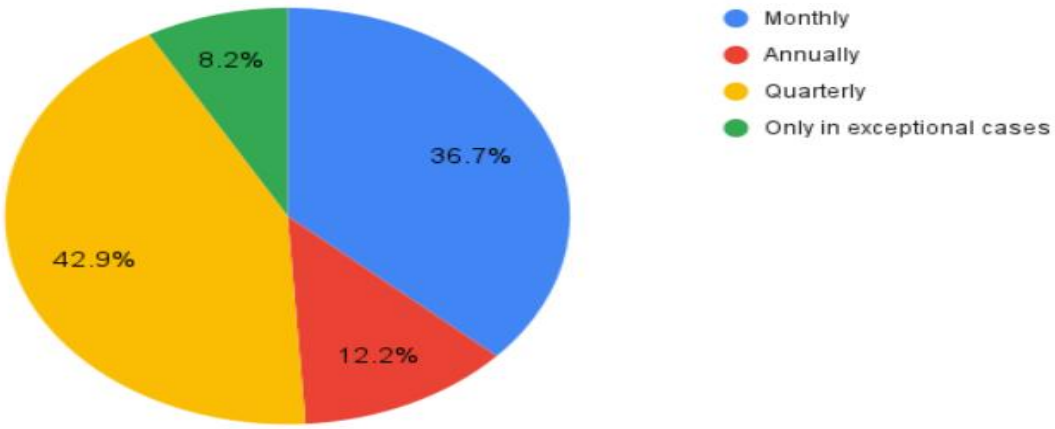

Figure 8. Frequency of Budget Review or Adjustment

Departmental Involvement and Key Metrics

Survey results show that monitoring and planning stages of budgeting belongs mostly to Finance departments with roughly 52,2% and 65,2% respectively while other stages such as reporting (43,5%) and execution (30,4%) are lower compared with others. The findings of the survey focus on the key areas like potential misalignment between operational and planning execution.

The cost categories mentioned in the survey answer mostly managed by departments including personal expenses (35,4%), marketing costs (39,6%) and operational expenses (39,6%). Remarkable, according to the survey results that only 25% mentioned department responsible for IT investments, indicating that digital and financial domains are growing convergence.

Cost per unit (31,9%), operating margin (38,3%) and budget variance (48,9%) were among the Key Performance Indicators (KPIs) tracking. However, labor productivity and ROI were less regularly tracked and suggesting a chance for improving strategic focus on returns and efficiency.

5.4 Perceptions, Readiness, and Adoption of AI

Only 14,3% of respondents acknowledged that currently AI is used by companies in financial planning and management. The lack of visibility in the use of technological tools is shown by the 26,5% result. Even though the respondents have strong belief in the potential of AI: 59,2 % expected faster variance analysis and 81,6% predicted reduced manual workload. Well-informed decision making and saving of the costs were also expected outcome.

The main barriers for adopting AI include insufficient support of management (43,8), high implementation costs (45,9%), and lack of IT professionals (60,4%). These findings approve that human capital and strategy alignment are crucial enablers, this noted in the literature as global challenges (e.g., Gartner, 2023).

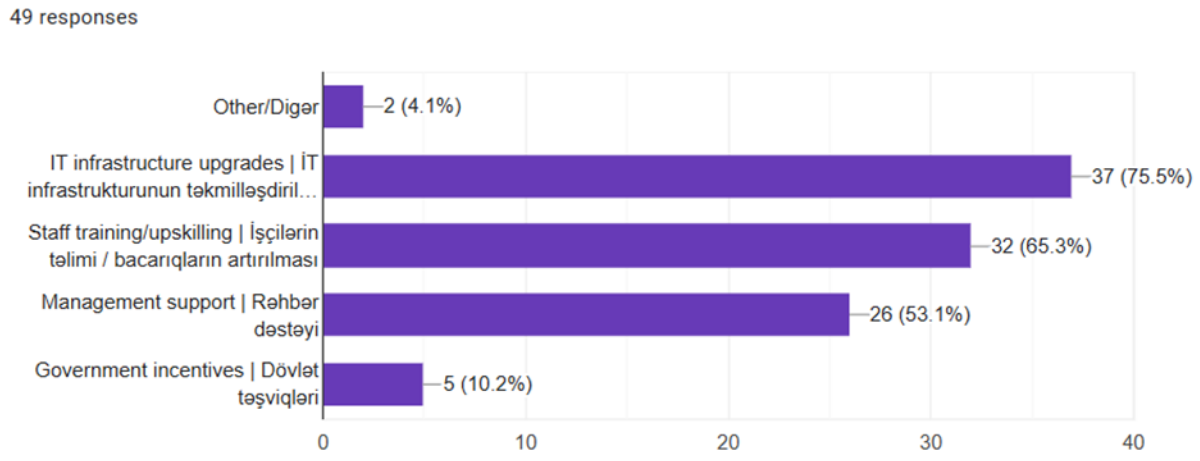

Figure 22. Key Enablers for Successful AI Adoption in Financial Processes

While 27,7% of respondents predict visible AI impact 4-6 years, the majority of respondents (53,2%) believe it will be 1-3 years. The most respondends of the survey (75,5 %) noted the need for upgrades of IT infrastructure, alongside leadership support (53,1%) and staff upskilling (65,35) for successful AI adoption.

5.5 Initiatives for Strategic Alignment and Cost Control

According to the results of respondents only 44,7% respondents said that there is formal cost cutting targets in their departments while 29,8% respondent noted that they don't have. Additionally, budgeting responsibilities differed by function: monitoring (51,1%) and forecasting (66,7%) were more frequently performed than supplier negotiations and labor scheduling.

Despite the organizational resistance, 79,2 % of survey participants personally supported the adoption of AI-based tools, and this shows that they are ready personally to the modern techniques. Adoption of AI tools is more challenging for the IT (18,8%) and Finance (29,25) departments, because they have central role in integration and implementation stages.

5.6 How AI Is Seen to Affect Revenue

According to the results of the last question, majority of respondents (44,4%) noted a moderate (5-10%) revenue increase attributable to technology and AI, while only 2,2% respondents see the significant growth of revenue. The positive correlation between revenue growth and AI is observed just by 39% of respondents of survey. This finding suggests that the full capacity of AI-based tools has not been achieved and still has unclear data about advantages, but its expected value is increasingly growing.

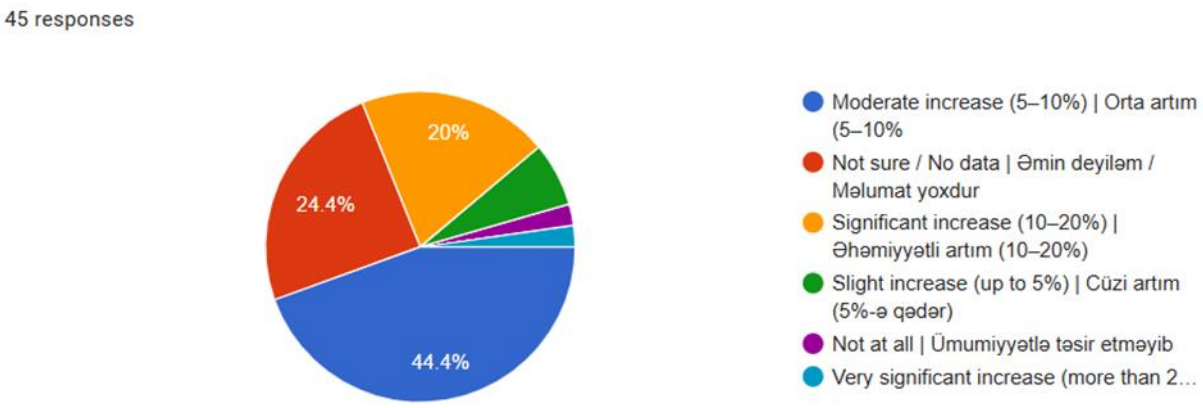

Figure 28. Perceived Contribution of AI and Technology to Revenue Growth

Challenges and Opportunities in Adopting AI in Azerbaijani Retail

Based on the results of the interview and survey, we can basically say that the weakness of communication between departments, the planning of large sums in the budget for bringing the IT infrastructure to the latest version, and the state's weakness in preparing new laws for the use of AI are currently considered to be the barriers for the development of AI in Azerbaijan In Azerbaijan, many companies in the retail sector operate without a centralized data warehouse and cloud-based infrastructure, which creates problems for the implementation of AI. Additionally, lack of information regarding the strategic benefits of limited AI and cultural resistance are examples of barriers to AI adoption. However, companies should be aware of the opportunities of using AI and try to take steps to implement it. The application of AI will enable retail companies in Azerbaijan to provide more real-time demand forecast, cost scenario simulation, fraud detection and automatic variance analysis. And as a result, by applying AI, businesses will be able to implement faster decision-making, increased profitability and better inventory alignment in their business operations by achieving optimized pricing model and cost saving (Maple et al., 2023; Uppatumwichian, 2012).

4.3. Impact of AI on Revenue Enhancement

Looking at the experiences of global retail companies, it can be said that the implementation of AI has significantly increased revenue. For example, Walmart, which is one of the most famous retail companies, uses AI for demand forecasting, shelf-scanning robots, real-time inventory replenishment, and the use of all these together has increased profitability and operational efficiency (Retail Industries, 2024).

Amazon, one of the famous online retail sector representatives, has implemented AI for fraud prevention, dynamic pricing and personalized recommendation, and this in turn has contributed to the increase in basket size and the development of customer loyalty (Quick Reference Guide for Understanding AI, 2023).

Although there are few such examples in the retail sector of Azerbaijan, important steps are being taken in the direction of future-oriented AI development. If we compare retail and other sectors,

for example the local telecom sector, we can see that more AI-oriented work has been done, which has led to a more advanced budget and cost control process AI as a pilot project in mid-sized real estate companies and we can see that it has started to be implemented, and the result shows that in 6 months, 18% reduction was realized with demand planning. While quantitative metrics on AI impact in Azerbaijan remain scarce, qualitative insights indicate a strong potential for revenue growth through early detection of inefficiencies improved scenario-based budgeting and financial control. (EY, 2022; CESD, 2024).

4.4. Discussion of Findings considering Literature

The results show that some studies have been conducted in the literature regarding the benefits of AI.

First, today's market environment is more volatile, flexible and requires real-time responsiveness, and traditional budgeting and cost control methods are less able to meet these demands (Akanni, 2024; Rivera, 2025). The research study shows that many retail companies in Azerbaijan are spreadsheet-based and static, and in this case, adaptability and integration are lacking. Second, the theoretical benefits of AI, such as efficiency, accuracy and real-time forecasting, have been proven to be high, both in research literature and based on interview results (Jain & Kulkarni, 2023; Oracle NetSuite, 2023). However, the use of AI in Azerbaijan's retail sector is still in the initial stages and there is an important implementation gap.

This aligns with ERP adoption findings showing that talent, infrastructure, talent, and strategic alignment are crucial for successful transformation (Grabski et al., 2009; Weerasekara & Gooneratne, 2023). If we look at the issue from a policy perspective, we can see that there is a great need to establish a national strategy to promote and develop AI transformation in the real sector in Azerbaijan. Without public-private cooperation, training initiatives and fiscal incentives, it will be difficult for SMEs to develop sales strategies using AI.

4.5. Strategic Recommendations

Business-Level Strategies

Phased AI implementation: Start with low-impact but high-impact areas such as inventory optimization and demand forecasting. Such step-by-step steps reduce cost pressure and create a clearer idea about AI tools in companies.

Cross Department and Upskilling Training: IT and Finance teams must be trained in ERP integration, data analytics and AI basics. It can be effective to organize internal campaigns to support long-term adoption of AI.

Adopt Scalable ERP Systems: SMEs should adopt modular ERP platforms that can integrate AI-based forecasting and budgeting tools, improving real-time decision-making and data centralization.

Pilot Projects and KPIs: One of the steps companies will take to achieve effective results is to start with pilot projects and monitor specific KPIs (for example, cost variance and forecast accuracy) and make recommendations based on the results.

Policy-Level Strategies

Government Incentives: Digital transformation grants, co-financing models and tax breaks should be generated to support AI adoption in retail SMEs.

Digital Infrastructure Development: Expand national platforms, data security regulations and cloud service accessibility to support AI implementation.

Public-Private Partnerships: Encourage collaboration between retail associations, AI startups and universities to increase digital awareness, share best practices and foster innovation.

National AI Readiness Roadmap: Azerbaijan government should improve a sector-specific roadmap for AI adoption in retail, integrating both human capital and technical development strategies.

5. Conclusion

5.1. Summary of Main Findings

This research clarified the difference between the application and potential of AI-based financial tools in the retail sector of Azerbaijan Although the information and publicity work related to the strategic value of AI is carried out, the traditional method is still used in the budgeting and cost control processes in the retail companies of Azerbaijan. This study attempts to analyze cost control, budget accrual, financial management, and AI integration for the retail sector in Azerbaijan.
Findings from surveys, interviews, and case studies revealed a significant gap between global digital finance experiences with existing experience in Azerbaijan. In many real estate companies in Azerbaijan, the budgeting process is Excel-based, manually prepared, and remains hidden in the finance department. Cost Control is not based on information; it is reactive and helps to optimize revenues. Despite being newly created, AI has already gained interest among financial professionals. According to interview results, AI modeling and anomaly detection have the potential to enhance budget accuracy. Tools like IBM Planning Analytics, and Microsoft Power BI, SAP Analytics Cloud can be cited as examples of budget platforms. In controlling control, AI-based systems can help to determine cost trends, identify inefficiencies, and automate control mechanisms. When these tools listed here are partially applied, the respondents have stated that the allocation of resources is improving and there is a faster decision-making process. Research has also determined that financial planning supported by artificial intelligence leads to revenue growth in the retail sector by enabling proactive management rather than reactive management. Empirical findings show that the budget and cost control system in many retail companies is structured in an ex-dependent, centralized manner and is executed annually with minimal cross-departmental engagement and limited revisions. The results of the survey mainly show that 64% of the participants state that there is a lack of real-time monitoring in their company, and only 4% of the participants testified that their company uses A-powered forecasting tools.

The results of interviews with 10 experts also confirm these findings. Seven interview participants confirmed the lack of scenario planning and dynamic forecasting in their companies, while some also emphasized the lack of a reactive approach during budget revisions.
As one finance director noted:
"Our budgeting still follows the static Excel model. Even if conditions change mid-year, we hesitate to revise anything due to the manual workload involved."
In addition to these research findings, although the survey participants are confident that the implementation of AI will reduce manual work and improve forecasting, barriers such as high implementation costs (45.9%) and a lack of skilled specialists in the IT field (60%) continue to exist in retail companies.

5.2. Answers to Research Questions

RQ1: **How can AI improve budgeting accuracy and cost efficiency in Azerbaijani retail?**

Regarding the implementation of AI in retail companies in Azerbaijan, tools integrated into ERP systems give great promise for increasing cost efficiency and budget accuracy in the future.
real-time scenario modeling, anomaly detection and predictive analytics can allow for cost optimization and proactive budget adjustments. AI allows companies to predict revenues, expenses, and sales more accurately, thereby increasing budget accuracy through this analytics method. Based on previous data, AI models can reveal seasonal trends, market volatility, and consumer behavior, and later these data can be included in forecasts. Tools like IBM Planning Analytics and Oracle Cloud EPM enable continuous re-forecasting and ensure the integration of real-time data. As a result, dependence on outdated annual budgets decreases, and budget surplus is avoided. An IT manager from a large retail chain emphasized:

"AI could help us detect cost anomalies early and run what-if simulations, but right now we still react after the cost variance has occurred."

RQ2: **What is the potential for AI-driven financial tools to enhance revenue?**

This research determines that the revenue potential of AI and digital new technologies is still medium but very promising for the future. Approximately 44.4% of survey participants estimate that partial use of AI will increase income by 5-10%. AI contributes to more effective pricing strategy, inventory management and demand forecasting. Utilizing AI tools leads to an increase in revenue for companies by managing inventory more intelligently (through demand forecasting), optimizing pricing strategies (via dynamic pricing), and responding more quickly to consumer trends. These effective tools mentioned release capital for revenue-generating initiatives and increase ROI. For example, AI tools integrated with ERP systems lead to identifying high-margin products, optimizing promotional budgets, and reducing inventory costs in the retail sector. According to one CFO:

"If integrated well, AI could help reallocate costs from inefficient areas to revenue-generating ones, particularly during promotional campaigns."

RQ3: **How do finance professionals perceive AI's impact on their roles?**

A large proportion of survey respondents (79,2) view the application of AI very positively and believe that they see it as a mechanism for strategic planning and risk management in their daily financial tasks. According to the results of interviews, finance specialists are almost optimistic about AI. Many of them admit that the implementation of AI reduces their workload. It significantly helps them with financial analysis, scenario planning, and performance monitoring. However, some specialists have concerns about system integration and skill enhancement. Nevertheless, most of them acknowledged the need for organizational readiness and training. As one ERP consultant stated:

"Most teams are stuck in spreadsheets. Even though the ERP allows for automation, the culture hasn't changed."

RQ4: **What are the current budgeting and cost control practices and their limitations?**

The budgeting process remains static, and the process is initially guided by the finance department. In Azerbaijan, the practices in the retail sector are largely dependent on Excel, static budgets, and manual tracking of expenses. Most companies prepare their budgets once a year without considering real-time operations and market data changes. These signals manifest themselves in cases of overspending or underspending in the budget. Moreover, the lack of automation in operations leads to high error rates and delayed reports.The survey suggests that while the IT department (25%) is minimally involved in budget monitoring, the Finance department (52,5%) has a dominant function.
One budget analyst observed:

"Finance prepares the budget with very little input from Sales or Procurement. If demand patterns shift, we don't update the budget—only actual performance gets adjusted."

5.3. Contributions to Knowledge and Practice

This thesis is one of the first deep empirical analyzes of the role of AI in budgeting and cost control in the retail sector of Azerbaijan. This thesis academically contributes to the emerging of literature around digital finance, particularly in the retail sector of developing economies. By examining global artificial intelligence experiments, it analyzes the differences between real experiences and theories in Azerbaijan and seeks to address the gaps. This thesis prepares a roadmap for the necessity of AI integration during budgeting and cost control in Azerbaijan's retail sector and the steps that can be taken. At the business level, this research offers clear strategies to transition from static budgeting to data-driven forecasting. It also demonstrates how companies can enhance expense monitoring by utilizing integrated analytical platforms and automation tools. At the political level, the research emphasizes the need to support national digital transformation, workforce training programs, and the integration of ERP and AI in SMEs. It contributes to academic literature by integrating real-world data into theoretical models such as the Dynamic Capabilities Theory and Technology-Organization-Environment (TOE) framework. Practically, the findings offer a roadmap for policymakers and retail managers seeking to align resource allocation, modernize financial processes, improve cost transparency, and modernize financial

processes with strategic objectives. The research finding also emphasizes the significant need for cross-functional collaboration among IT, finance and other departments to fully realize AI's benefits in cost control and budgeting.

5.4. Research Limitations

This thesis faces various limitations during the research process:
Firstly, the research is geographically limited to Azerbaijan, which restricts generalization for other developing economies. Secondly, due to time constraints, detailed financial data in the retail sector could not be analyzed.
Sample size: The limited number of survey respondents and interviewees created the restrictions for generalizability of findings.
Sectoral focus: Since the main purpose of the study was to examine the retail sector, data from other sectors, such as logistics or manufacturing, are not extensively covered here.
Self-reported data: Both surveys and interviews relied on subjective accounts, which may be influenced by selective recall or bias.
Time constraints: Cross-national comparisons and longitudinal analysis comparisons could not be conducted during the project writing period

5.5. Recommendations for Future Research

To build on the present study, the following research directions are proposed:
Conduct in-depth research to measure how AI integration will impact financial KPIs and cost efficiency over time.
Analyze other non-oil sectors in your research and conduct comparative research between sectors.
Explore the role of digital literacy and organizational culture in AI adoption outcomes.
Investigate the effectiveness of training programs and government incentives in promoting digital transformation in SMEs.
Conduct a comparative analysis of countries (for instance; Georgia, Kazakhstan) with similar developing economies to evaluate policy models and regional samples.

5.6. Final Reflections

This thesis indicates a critical turning point in the development of financial management in the retail sector of Azerbaijan. Although many companies continue to use traditional budgeting and cost control methods, the level of awareness of the potential benefits that can be obtained with AI integration has increased in companies. Research shows that technological advancement is not enough to take a single step forward; integration also depends on leadership skills, internal capabilities, and breaking away from legacy thinking.

As one senior finance manager remarked:

"AI is not a luxury—it's becoming a necessity. We either adapt or we remain inefficient."

Ultimately, this study contributes both a strategic vision and an actionable foundation for Azerbaijani retailers striving to enhance financial agility, optimize cost structures, and contribute to the broader national objective of non-oil economic diversification through digital innovation.

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Appendices

- Interview transcripts

Interview questions for finance professionals

1. In your field, what are the primary difficulties your company has reaching precise planning and efficient cost control?
2. Which budgeting techniques do your business now apply? Under current market conditions, how successful do you believe traditional, zero-based, rolling forecasts are?
For budgeting or cost control, is your business now employing any AI-based, automation, or digital financial tools—such as ERP, predictive analytics, RPA? Indeed, how are they being applied?
4. Do you think prediction tools and artificial intelligence would greatly enhance income or profitability results, budgeting procedures, and financial accuracy? Could you provide a scenario or instance whereby they might produce value?
5. What do you consider to be the key challenges to implementing cost control solutions driven by artificial intelligence? (e.g., technological expenses, lack of experience, poor data quality, opposition to change)
6. In terms of digital skills, data literacy, and openness to new technologies, how ready would you evaluate your team or company?
7. Should other companies—inside or outside of your industry—plan to use artificial intelligence and technology to enhance budgeting and cost control, what strategic recommendations would you offer? Which elements define success most importantly?

Interview questions for IT professionals

1. From an IT and software development standpoint, what main difficulties does your company has enabling proper budgeting and efficient cost control?

2. In your company, how does the IT department help to apply or modify budgeting techniques—traditional, zero-based, rolling projections among others? These systems' efficacy in the dynamic world of today is what?
3. Currently in use for financial planning, budgeting, or cost tracking are many digital tools or platforms like ERP systems, artificial intelligence models, RPA, BI dashboards? Could you explain how the IT staff developed, kept up with, or combined these tools?
4. Drawing on your background, how may technical budgeting accuracy and cost management be improved by artificial intelligence and predictive analytics tools? Could you provide a project or use case whereby technology produces quantifiable value?
5. In financial planning and cost control, what are the main technical or organizational obstacles to implementing AI-based solutions (e.g., complexity integration, data infrastructure, user resistance)?
6. Specifically in terms of system scalability, data governance, and employee digital literacy, how would you evaluate your departments and more general organization's digital readiness for using new technologies?

7. Particularly with regard to IT development, change management, and cross-departmental collaboration, what strategic advice would you provide other businesses seeking to apply artificial intelligence and digital technologies for budgeting and cost control?

Responses to Interview Questions (Q1-Q8)

Participant: **CFO (Retail Sector)**

Q1: The retail sector in Azerbaijan operates in a dynamic and volatile environment, characterized by frequent changes in operating costs, new store openings, and seasonal fluctuations. One of our key challenges is matching budget forecasts with actual performance across our extensive store network. Fluctuations in rental prices, logistics costs, and promotional campaigns can disrupt even the most well-planned budgets. Furthermore, ensuring that each department continuously monitors and controls their expenditure remains an ongoing task. There is also a need to improve real-time visibility of actual and budgeted numbers in the market.

Q2: Our company primarily uses a traditional annual budgeting model, supplemented with quarterly revisions. While this has provided structure, the approach lacks flexibility in responding to sudden market changes. As part of our digital transformation roadmap, we are exploring the transition toward rolling forecasts and integrating predictive analytics to enhance agility. The finance department is also working with the IT team to reduce manual input by automating data flows into our budgeting platform, which will allow for more real-time adjustments and decision-making.

Q3: We are currently using SAP S/4HANA and Business Intelligence tools (BW and BI) for budgeting, financial reporting, and cost tracking. While full-scale AI integration has not yet been implemented, we have begun laying the groundwork by optimizing our ERP systems and introducing RPA (Robotic Process Automation) in standard financial operations. These tools support us in automating repetitive tasks and generating reports faster and with higher accuracy. Full integration of AI tools is planned as part of our strategic goals for 2026.

Q4: Yes, I strongly believe that AI tools have significant potential to improve budgeting accuracy and cost control. For example, AI can help forecast operating expenses by analyzing trends across large volumes of historical data, which is especially useful in retail where patterns are often seasonal. One clear opportunity is in cost variance analysis — where AI could automatically detect anomalies or inefficiencies in store-level expenditures, alerting managers proactively. Such tools would not only save time but also reduce human errors in forecasting and reporting.

Q5: One of the primary obstacles is the organizational readiness for adopting new technologies. While the investment side is not a concern — as we allocate significant budget toward digital systems — the main challenges involve staff training, changing resistance, and building trust in data-driven systems. Moreover, ensuring data quality, standardizing processes across departments, and integrating new tools into existing workflows requires time and careful management change. Legal and regulatory clarity on AI implementation in the Azerbaijani context is also something to consider.

Q6: I would assess our readiness as moderately high. Over the last few years, we've recruited finance professionals who are proficient in digital tools, and our IT-finance collaboration has steadily improved. However, there is still a gap in advanced data literacy and AI-specific knowledge. To fully prepare for AI integration, we are planning internal training sessions and collaborative workshops between the finance and IT departments. The key is not only technical readiness but also mindset transformation at all levels of the organization.

Q7: My advice would be to start with small, measurable projects — such as automating cost reporting or variance analysis — and scale up gradually. Companies should ensure strong

cooperation between IT and Finance departments, with a shared roadmap and ongoing communication. It's also critical to train employees across departments, not just in tool usage but also in interpreting data insights for strategic decisions. Lastly, building internal champions for AI adoption will help reduce resistance and ensure long-term success.

Participant: **Investment, Structured Finance and Modeling Manager (Renewable energy)**

Q1: First, let's make it clear that my job is not purely counting, so I'm more like an investment & corporate finance manager of the company. But so far, we're the same team. So, under the CFO of the company, we're all together and. The way we do it is, let's say we sit down always on the call, so I get to hear quite a lot. In general, in the renewables energy sector, especially for large scale wind and solar projects, one of the core challenges in budgeting and cost control. It's probably very high degree of uncertainty of our project. Lifecycle, you know. From development to construction, we face a wide range of variables. So, like one thing would be, let's say permitting delays or regulatory changes, land access issues or say can be interconnection availability and. Essentially like evolving subsidy mechanisms, these factors can delay the projects milestones or require reengineering, which in turn drives budget overruns. So, it's quite common to have all those. Another challenge is the volatility in costs. As you have the equipment cost, you have the construction costs and all of them are quite volatile in phase. For example, turbine prices and let's say balance of plant. Costs, those are the. 2 main lines let's say of the wind project for example. They can fluctuate due to a global supply chain dynamic, inflation or let's say geopolitical factors. Let's say Trump coming into power in the US changed quite a lot. In the world. All of which are difficult to predict during the early budgeting stages, right also. And many of our projects and different jurisdictions. Which introduces currency risks and tax regulatory differences that impact cost control and forecasting accuracy in general, so that there are several kinds of parts which we deal with and essentially, yeah, many factors lead to a challenging area.

Q2: Go ahead. The question so. We're using, I think, a hybrid budgeting model. So traditional budgeting is applied annually to set financial goals and allocate resources, and this provides a sense of structure and discipline. However, we increasingly rely on rolling forecasts, especially for projects. Active developed development or construction because they allow us to respond to evolving market conditions. Such as changes in equipment, lead times, right inflation in construction costs or shift in the market demand or but like for PA's, you have a power purchase agreement that is quite a lot changing the rolling forecast model is effective in the sense that. Encourages real time responsiveness and helps us evaluate risks and opportunities continuously and however the process is still largely manual and excel based, which in certain ways limits the speed and accuracy of updates. There is room for improvement through automation, or I don't know, AI enhanced tools, particularly when forecasting across multiple projects or countries essentially like jurisdictions. In those cases, AI would be really, useful. I think that's my opinion.

Q3: Yeah. Let me think. We've made progress in adopting digital financial tools, but AI implementation is still in the early stages. We use an enterprise resource planning ERP system to basically like consolidate budgeting, invoicing and reporting across different business units and

countries. This has helped standardize processes and improve visibility, particularly in comparing budgeted versus actual spending. In terms of automation using Excel based macros and some dashboarding tools like Power BI to basically streamline reporting and tracking. And. And we're now exploring more predictive capabilities. For example, I personally know that well, essentially using historical development and construction data to better estimate timelines and costs for new projects that would be really, useful. However, I also think AI. Based forecasting or risk modeling? Is it not fully embedded yet, right? Like it's not there now, and largely it's due to the challenges around the data structure or system integration and they select in-house expertise. We don't have that yet like yet. You know in our team we have really good professional experience, but. The ones who can use AI tools? Not really.

Q4: Yeah, I believe AI and predictive tools hold significant potential to improve budgeting and financial outcomes in general and especially in our industry, renewables. And renewable energy projects involve high upfront capital expenditures and long development timelines, so even small improvements in forecasting accuracy can have material impact on IR and profitability in general. So, like you know from this you know. It would be really, useful in my opinion. For instance, AI tools could be used to maybe analyze patterns from hundreds of previous projects to provide more realistic contingency.

Q5: Offers or identify the most common causes of delay and cost overruns like these are possible and like predictive analytics could also help with optimizing project sequencing or selecting the best time to go to market for procurement or PTA. Pricing and one area where this would be especially valuable in my opinion is scenario planning. So, like AI could model multiple macroeconomic scenarios, such as, let's say, high inflation delaying permitting or supply chain disruptions and help us make more data-driven decisions about where to allocate capital and how to hedge risks. So yeah, these are. Quite important for us and we're looking forward to it.

Q6: Yeah. There are several key barriers, right? First would be data quality and standardization are a foundational issue. Like many companies in our space, our historical project data is often scattered across multiple spreadsheets formats or platforms. Which makes it. Hard to feed and clean data into AI systems, so that's kind of the core. Second, the technical expertise needed to evaluate AI tools is not yet fully embedded in most finance teams. There's a growing interest from what I know, but not all team members are familiar with data science or AI based forecasting, which obviously creates a skill. Needs to be bridged through hiring or training. 3rd I think there is a natural resistance to change, particularly when it comes to moving away from trusted tools like let's say Excel and budgeting processes are deeply embedded in the workforce and let's say convincing stakeholders too. Shift to AI powered systems requires a lot of strong change management plans, including clear demonstrations or added value. And finally, I think upfront technology costs can be a hurdle. Especially when projects are, let's say pre revenue, right, we don't generate in projects any money imagine right. And in sectors where capital is carefully allocated by private equities. Justifying spending on AI tools requires a solid business case, which we. Don't have sometimes.

Q7: Yeah, my advice personally would be to treat it as an excuse for me, as both digital and cultural transformation. Start with a clear use case that. Solves a real pain point. You know, such as forecasting construction costs or automating cost variance reports so that teams can see immediate value. Pilot projects are a great way to build confidence and identify what works before scaling up. Starting from small and going to a large is way better than starting from large and confusing everyone. It's also, I think, quite important to invest in data quality and internal capability. Is. AI is only good. Well, it's only as good as the data it learns from, right? You know, the garbage is out. You know, as a good example of it. So, getting your data infrastructure right should be a top priority in my opinion. And so equally important is having. Champions within both finance and IT who can bridge the gap. You know, people who understand both sides feel like business needs and technical execution is very, very important in my opinion. And finally, I would say we should not underestimate the people's side. Upskilling communication and change management are quite essential to get buy in and long-term adoption, so the organizations that succeed will be the ones that balance innovation with practicality. And that know how to integrate AI into them. Without overwhelming their teams is something that should happen, you know? If you are disgusted by the change and you're not going to let it happen, it should be in a way that makes it at least feel simple to implement, let's say. And, you know, it proves that you know the time. Management and like you will be able to consume less of your time to do this for example, so that would be it really.

Participant: **Lead Cost Controller (Retail Sector)**

Q1: According to my opinion, the retail sector is more dynamic. There are various cost drivers and uncertain environment like seasonality, unexpected increase of the new stores. All of them are cost drivers and lead budget variations. This situation requires detailed review budgeted vs actual numbers and cost drivers. In order to get accurate results in the retail sector, the budget responsible should be assigned to each store who will control the budget and costs.
Q2: I guess the budgeting and cost control system in our company might be more effective. I have been working for this company for 7 months and during this period I have observed that each department participates directly or indirectly in the budget planning process, but they have a lack of monitoring and control. For instance, recently we have observed critical budget issues in the HR department, even though they have their own budgeting team for controlling and monitoring. This situation creates the necessity for monthly controlling costs and monitoring budgets. Monthly informative data should be shared with each department related to their spendings and remaining budgets during the month.
Q3: Unfortunately, currently AI-powered tools are not used in our company, maybe they can be used individually by some employees. The ERP system, like SAP, is improved and integrated into all our budgeting and cost control operations day by day in our company. Our company allocates huge amounts from budget to improve ERP systems. I believe that adaptation of AI and digital financial tools into all operations will increase effectiveness.
Q4: I think AI has a significant effect on financial accuracy. According to my 20 years of experience in finance, I can say that every process might have human based errors. The large companies require accuracy, rapid response and automation. AI will be able to lead to a decrease

in human work and more fast reports and analysis will be available. For instance, AI will create the chance to periodic calculation and visualization for companies in the cost control process. In our company 1 employee works in budgeting and 1 employee works in cost control and I guess it is not enough for this large company that hasn't adapted AI into operations. AI can generate automated forecast numbers with reference to the past data; it will reduce time consumption.
Q5: I think the main challenge for our company is not the cost side, because our company spend huge amounts on ERP systems. The main issue for passing is that financial models in our company are not completely accurate. The management should think about this issue. Financial control models will be effective with giving detailed information to employees. After this process the employees will have the idea that AI can be used in which operations. AI integration should happen step-by-step and start with organizing AI training.
Q6: I guess our team and company are ready to integrate the process. Our team consists of well-educated, open-minded employees.
Q7: Recently, I used one of the AI tools individually for my own report that shows the rent expenses. AI assists me to get scoring of the stores with the huge data. I believe after passing the AI we will be able to say exactly what the cost saving should be or not.

Participant: **Corporate Finance Consultant**

Q1: I work in the private sector; we provide consulting services to the clients. One of the challenges I guess is to achieve accurate forecasting in a rapidly changing environment such as unexpected expenses and inflation.
Q2: Traditional budgeting and partially rolling forecasting methods are used in our company due to our specialization. Currently we rely on traditional methods which we guess works faster.
Q3: We haven't used RPA yet. We have started to automation and predictive analytics for budgeting and planning, for example, we are exploring the possibility of using simple forecasting models to predict seasonal costs and support more data driven decisions.
Q4: I believe the predictive tools can improve accuracy a lot, for example, it can detect budget variations and make timely adjustments avoiding inaccuracy, but unfortunately, we haven't used them yet in our company.
Q5: According to my opinion, the biggest barriers are high initial investment costs, lack of skilled experts, maybe in some cases resistance to changes form some team members.
Q6: Some team members are advanced in using digital tools while others are still in the adoption process. To be honest, more investment is needed for training and support near future.
Q7: My key advice is to begin with small projects focusing on upskilling and ensure leadership support. Just technology is not enough, culture and mindset are equally important.

Participant: **Head of IT Department (Retail Sector)**

Q1: Currently we are using ERP systems such as SAP S/4HANA in our financial operations. BW is used for daily reports, while BI assists us to get daily, monthly and yearly detailed reports. One

of our targets for 2026 is to accelerate the AI integration process with BI tool for running the huge dataset. For implementing this process, we are planning to allocate resource.
Q2: Yes, we have made a significant contribution in these processes, and we are planning to change the budgeting process by decreasing the manual budget addition to the system. The budgeted amounts will be included into the system without using manual work, the SAP requests will be integrated into budgeting screens. This integration will create an opportunity to follow the budget request in SAP.

Q3: Firstly, we are starting to create the best area by removing some issues in the back stages, then we able to use AI tools. RPA will assist us in standardizing the business operations, and it is also considered the main step. These tools will assist us to run and analyze the reports automatically.
Q4: I guess the capacity of system is not the main challenge for our company, because the newest innovative technologies exist in our company, and the main issue is resistance to changes.
Q5: AI is a new idea for our country and new legislation should be implemented in the integration process; we are trying to learn all of them. I think HR department should organize training related to the adoption of AI and if it is fun for things like playing games it will be more effective. We have passed the digitalization process in some business areas, but we are planning to use AI solutions for 2026 in sales, logistics and other crucial operations.

Q6: IT department is planning to create an automated way for standardizing the process and will be able to analyze the increase in the cost according to the departments. Using Excel is not effective for detailed monthly and quarterly analyses.

Q7: Nowadays we are observing that AI tools are used in various operations, including self-service applications and programs. The payment systems have been improved by using FinTech. My recommendation is to build strong collaboration between the IT and Finance Departments. If finance departments start a new project, they should be consulted with IT for identifying the possibilities of the project.

Participant: **Head of the Business Control (Telecom Sector)**

Q1: Key Budgeting and Cost Control Challenges in the Telecom Sector
I currently work in the telecom sector, which is highly technology-driven and significantly influenced by digitalization. One of the primary challenges in budgeting is identifying the most appropriate drivers for accurate budget planning. On the revenue side, forecasting the exact number of customers is complex due to frequent changes in customer behavior, which are influenced by tariff adjustments and macroeconomic factors.
From a cost perspective, one major challenge is managing people and aligning their understanding with budget assumptions. In my experience, it is often difficult to explain budgeting templates to various users across the organization—especially since resistance to change is a common hurdle.

In terms of cost control, a key bottleneck is the inefficiency of the current ERP system. We've encountered issues with data accuracy due to human error, which makes it time-consuming to reconcile and validate actual figures. Additionally, departments tend to either overbudget or underbudget despite our efforts to minimize these discrepancies. To address these challenges, we are currently in the process of implementing a new ERP system and a Planning Tool aimed at improving accuracy and fostering better collaboration with end users.

Q2: Budgeting Approach Used

We are currently adopting a zero-based budgeting (ZBB) approach. This method enables us to analyze and justify every cost from the ground up each year, rather than relying on historical trends that may include prior errors. Given the rapid technological changes and the dynamic nature of our industry, zero-based budgeting allows us to remain agile and aligned with current business drivers.

Q3: Technological Tools in Use

At the beginning of 2024, we began implementing Robotic Process Automation (RPA) across the organization to automate repetitive daily tasks. So far, we have saved approximately 700 hours of manual work. While RPA has not yet been integrated into the budgeting process, it is actively being used for routine operational tasks.

Our current ERP system is SAP, and we are working to enhance its capabilities. Additionally, we plan to implement SAP Analytics Cloud to support our budgeting, planning, forecasting, and management reporting processes. This tool will allow us to consolidate all budget-related data, provide detailed justifications, and produce consolidated financial statements with budget-to-actual variances and forecasts.

Q4: The Role of AI in Budgeting and Forecasting

I firmly believe that Artificial Intelligence (AI) and predictive analytics can significantly enhance the accuracy of budgeting, forecasting, and actual reporting. From a profitability standpoint, AI can analyze historical customer data to predict future behavior and provide insights for business and commercial teams to optimize offerings.

Moreover, AI tools can help identify potential cost-saving opportunities by drawing correlations between macroeconomic indicators and internal company data. However, I believe that these tools are most effective when used in conjunction with human expertise. Human oversight remains essential to ensure contextual accuracy and informed decision-making.

Q5: Common Obstacles to Implementing Technological Solutions

Based on my experience, the main barriers to adopting advanced budgeting and planning technologies include:

- Limited financial resources and technological expertise
- Poor data quality and lack of clean, structured databases
- Employee resistance to change
- Short-term thinking by some members of top management

- Absence of a clear company-wide strategy for digital transformation

Q6: Current Team Focus and Capabilities
My team is currently focused on developing and automating processes using the Cash Flow Tool, ERP Tool, Planning Tool, and RPA. The broader company strategy for 2024 emphasizes digitalization and agility. Team members are increasingly confident in working with scripts, building data models, and developing automation solutions internally.

What strategic advice would you give to other businesses (inside or outside your sector) that are planning to adopt AI and technology for improving budgeting and cost control? What factors are critical for success?
Q7: Advice on Adopting AI and Predictive Tools
When adopting AI and predictive tools in budgeting and planning, I recommend the following steps:

- Clearly map out the company's goals and needs related to AI and predictive technologies
- Communicate transparently with employees about expectations and anticipated changes
- Invest in developing internal talent rather than relying solely on external experts
- Establish top-down guidance through structured organizational charts and clear responsibilities
- Allocate sufficient investment to key areas critical to digital transformation

Participant: **(Head of the Department for Program Management and Improvement, IT department, Retail Sector)**

Q1: BI is used as a tool and SAP ERP is used as a system.
Q2: Yes, I participated. I participated in the restructuring of the budget mechanism, the restructuring of the budget approval mechanism, the request approval system, in addition to cost tracking, PNL tracking, and the visualization of financial reports. I participated in the presentation of the necessary data, its analysis, and implementation.
Q3: RPA is used to automate financial reporting and daily operations.
Q4: Initially, during the transition from the old ERP system to the new one, the most difficult stages were tracking depreciation reports, transferring period transition documents, and also adapting the new cash register system.
Q5: I rate it normal.
Q6: By eliminating manual work, when the correct process definition is implemented, the budget can be approved as accurately as possible and costs can be controlled.
Q7: With AI, tailored offers and prices will be presented to each customer.
Product experience with augmented reality - the customer will visually "try on" the product in a mobile application.

Processes such as invoice email, payment tracking and expense categorization will be performed by robots.
Artificial intelligence models will be used for cash flow, expenses and revenue forecasts.
Risks will be identified in advance with scenario-based analyses.
Traceable systems will be established to prevent fraud in POS transactions and payments with suppliers.
Smart contracts will ensure automatic and transparent execution of payments

Q8: Establishing a shared strategy and goals

IT and Finance leaders should meet regularly to define common financial goals supported by technology (e.g., expense automation, revenue analytics, risk monitoring, etc.).

Create cross-functional working groups for joint projects

For example, agile teams should be formed in which representatives of both departments participate in projects such as ERP optimization, BI systems development, predictive financial analytics, etc.

Create a "same wave" in technical and financial language. For understanding.

In many organizations, IT and Finance speak different "languages". To overcome this difference:

Organize basic technology training for the Finance team (e.g., BI tools, database understanding).

Conduct basic training for the IT team on financial reporting, KPIs, and the budget process.

Transition to shared systems for real-time data-based decision-making.

The joint selection and installation of platforms such as Power BI, SAP Analytics Cloud, Oracle EPM by Finance + IT allows for the management of information from a single center.IT controls the technical accuracy of the data, while Finance controls its analytical use and decision analysis.

Close cooperation in the field of data security and compliance

- Financial data is among the most sensitive data. Data governance and audit mechanisms should be established together with IT.
- The audit trail of financial reports, access rights to confidential data, and rules on data encryption should be developed jointly.

Participant: **Experienced Finance and Business Advisory Consultant**

Q1: Firstly, let me introduce myself, I am working as an experienced financial and business consultant at an international consulting firm. I was selected as a suitable candidate for this

interview because I have previous experience in Budgeting and Reporting. Budgeting is an important process for the company's shareholders and board, because they set realistic goals and check whether they have achieved those goals, which shows the importance of this process. The most difficult part for me is getting information from departments in budgeting, which causes a lot of time loss.
Budgeting continues from 3-4 months before the beginning of the new year until the end of the year, and then it is tested. The analysis of differences will start from next year. In my opinion, one of the most difficult aspects of the job is that it takes a lot of time. The expenses of each department are collected separately.
Q2: Traditional budgeting is mainly used in the national market. Zero-based budgeting is not used because there are too many files, and it is preferable to collect large files from scratch. This means a huge waste of time and lack of resources. I think that the rolling forecast model is mainly used by banks. In the retail sector, the traditional method is mainly used. The reason is that by applying the system established in the previous years to the next years, they present guidance with new goals and prevent the loss of time.
Q3: I think that AI will simulate the budgeting process. The reason is that the usual files with Excel are very voluminous and difficult to analyze. AI will help us to compare the actual and budget amounts more visually. In the company where I worked, we extracted the actual figures from the ERP system, SAP, and compared them with the budget figures, but it would be very effective for us if we could actually see both the actual and the budget figures in the system.
Q4: I think that using AI would increase the accuracy of financials. It would help in identifying differences, sometimes accountants enter expenses and do not provide detailed information, and this creates difficulties for budget workers.
Q5: Not every company can afford the costs associated with AI. I think another problem is the lack of human capital, and many companies are turning to foreign markets for system installation rather than the local market. As I mentioned, the first barrier is the lack of financial resources, and the second is human capital.
Q6: My team's thoughts on AI were very positive. We were using Excel VBA for visualization. I think using RPA is very important.
Q7: I think that the automation of the budget process will save time and resources. I think that there should be a standard system built with AI, and every department should enter their budgets into the system according to the standard form through ERP, and in this case, it will be more convenient to check the budget for the employee.

Participant: **Head of the Finance Department (Retail sector)**

Q1: Our sector does not have a single logic. We have bottom-up and to-down logic. This means that the bottom-up budget is prepared and presented to the board. The problem is that the established budget can be changed by the board's decision, and it can directly affect the goals. According to us, the budget figures given by the budget team are correct, but they are often changed from the board. When it comes to the cost control process, we can say that our biggest problem is the large number of work processes and the lack of many documents. To counter this, we have fixed the purchasing request mechanism, and this is considered predictive budget control. I think that in order to control the budget, the culture of the budget should be formed in the workers. One of our problems is that the stores place orders for various materials, which are often not

considered in the budget, and this causes budget overruns. We are preparing to implement a new budget control mechanism for materials and goods with a lower price.

Q2: Traditional budgeting is mainly used in the national market. Zero-based budgeting is not used because there are too many files, and it is preferable to collect large files from scratch. This means a huge waste of time and lack of resources. I think that the rolling forecast model is mainly used by banks. In the retail sector, the traditional method is mainly used. The reason is that by applying the system established in the previous years to the next years, they present guidance with new goals and prevent the loss of time. We currently use the traditional method in our company. In order to be able to use zero-based, the working principle must be changed, and this is also something that takes time. We do not use the role at the moment, but we plan to in the future. We have established a preventive budget when looking at the market, and a budget culture has been formed in the structures. For example, the main goal of the store opening team should be to look for ways to save on the budget. Stores should increase sales by saving on the budget.

Q3: No, it is not used. There is budget control, predictive analytics are not used. There is a place in monthly financial presentations related to risk margins. RPA jobs in accounting are automated, but the RPA copy is still weak in the process.
Q4: I think financial accuracy will increase. Budgeting will be activity based, and budget forecasting will be more accurate.
Q5: In my opinion, AI-powered technologies should be individual for each company problems, data quality, costs. I think the resistance to change will not be strong, but there will be little work in the budgeting, but the budget team will participate in the operating budget.
Q6: There are preparations for transition to RPA. The main thing is that our company has its own SAP and IT team. The main issue is establishing a connection with business processes
Q7: Business processes should be established and conform to international standards. Let's know exactly what AR and AP are busy with. Have briefing sessions for ERP and AI support

Participant: **Process Automation Manager (Retail sector)**

Q1: I think the first problem is collaboration between departments. The second is the lack of proper training on budget and expense management.
Q2: In our company, the traditional method is still used, and in the future, we plan to switch to zero-based budgeting.
Q3: Currently, RPA, a type of AI, is only used in accounting. However, improvements are being made to ERP. There will be a budget application screen in ERP and budget managers will be assigned so that they can control their own budgets.
Q4: I think the first barrier is the lack of clear exchange of ideas between the IT and Finance departments, and the lack of meetings. Second, budget and cost control have not been fully formed yet.
Q5: This year, we have a plan for the budget managers to monitor their own departmental budgets, and this will be more convenient for financial workers to clarify this year's budget deficits with the data of previous years, forecast and variance analysis for the future. We are working on the budget application screen now so that automatic budget settings will come.

Q6: We have started to use AI to cut electronic waste on the tax side. At the same time, we have automated our cash register transactions with RPA and automatically find daily cash or card payments from the Z cash register account. This year, we plan to further automate our work between the supplier and our company through ERP.
Q7: I think that AI integration will be effective for all businesses, and the necessary steps should be taken for this.

Survey questions and results

1) **What is your current department?**
2) **How many years of experience do you have in your current department?**
3) **What is the size of your company (number of employees)?**
4) **Which type of retail business does your company operate?**
5) **What budgeting approach does your company currently use? (Select all that apply)**
6) **Which tools are used for budgeting and forecasting? (Select all that apply)**
7) **How would you rate the accuracy of your company's current budgeting and forecasting?**
8) **How often are budgets reviewed or adjusted?**
9) **How involved is your department in the following budgeting stages?**
10) **Which cost categories are mainly managed by your department?**
11) **Which key performance indicators (KPIs) are tracked in your department's budgeting/cost control process?**
12) **What is the primary driver of cost increases in your department?**
13) **Does your department set cost reduction targets annually?**
14) **Who in your company do you think is responsible for driving AI adoption?**
15) **How confident are you that AI will deliver measurable cost savings in your department?**
16) **In your opinion, which department faces the most challenges in adopting AI for budgeting and cost control?**
17) **How familiar are you with AI technologies in financial management?**
18) **Does your company currently use AI or automation tools in financial management?**
19) **In your opinion, what benefits could AI bring to budgeting and cost control? (Select all that apply) |**
20) **What barriers do you think prevent AI adoption in your company? (Select all that apply)**
21) **How likely is your company to adopt AI in budgeting and cost control in the next 3 years?**
22) **What would be needed to successfully adopt AI in your company's financial processes? (Select all that apply)**
23) **Would you personally support the adoption of AI in your department?**

24) **Which of the following budgeting or cost control activities is your department responsible for?**
25) **What would make AI adoption easier in your department?**
26) **What level of AI-related training has been provided to your department?**
27) **What timeframe do you expect AI to have a visible impact in your department?**
28) **In your opinion, to what extent has the adoption of AI and technology contributed to revenue increase in your company?**
29) **How would you describe the relationship between AI adoption and revenue growth in your company?**

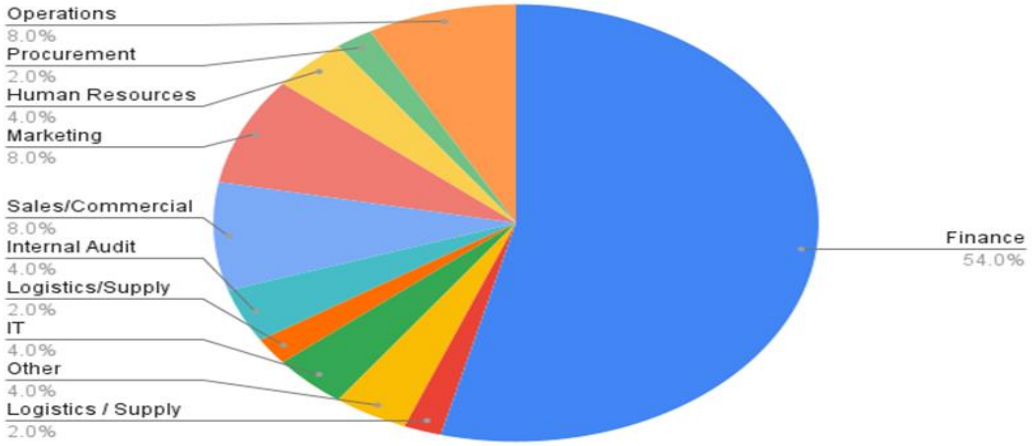

Figure 1. Respondents by Department

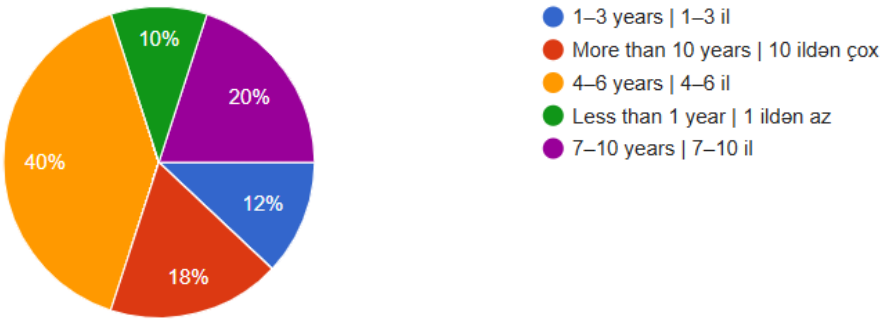

Figure 2. Years of Experience in Department

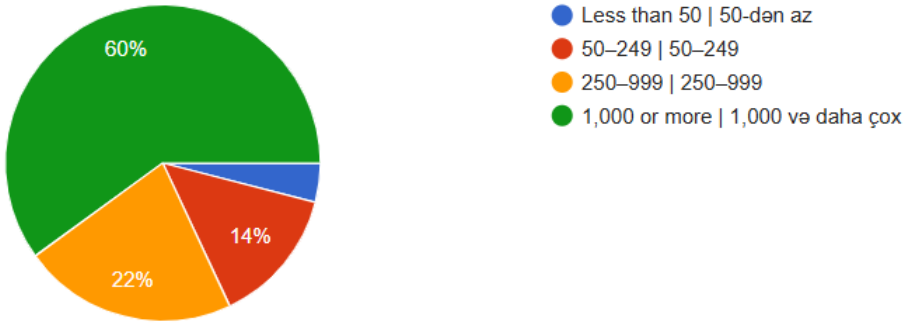

Figure 3. Company Size by Number of Employees

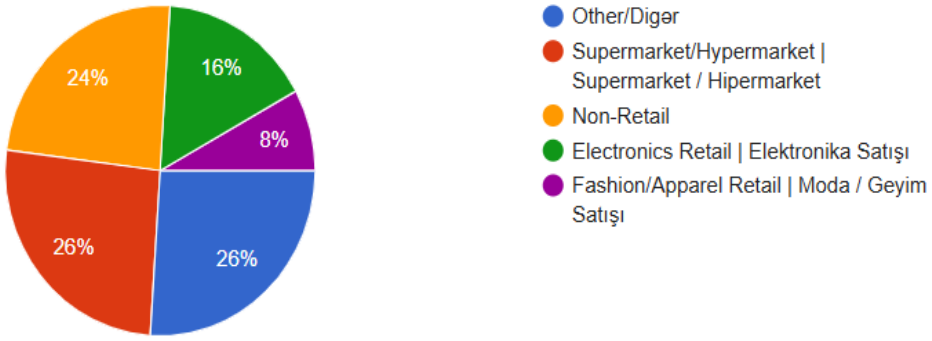

Figure 4. Type of Retail Business

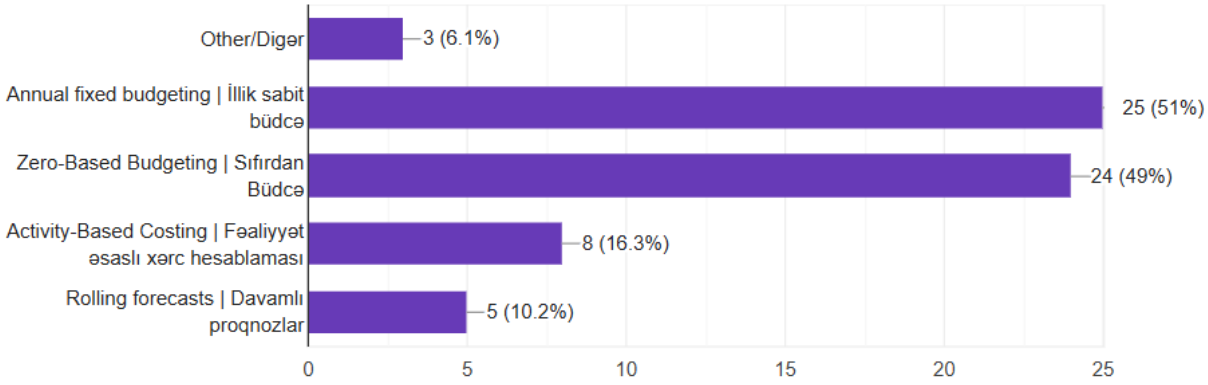

Figure 5. Budgeting Approaches Used

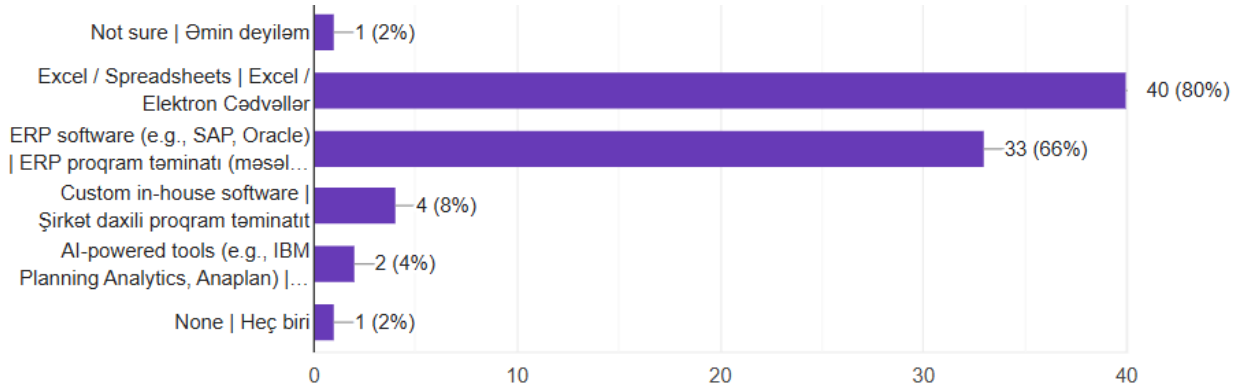

Figure 6. Tools Used for Budgeting and Forecasting

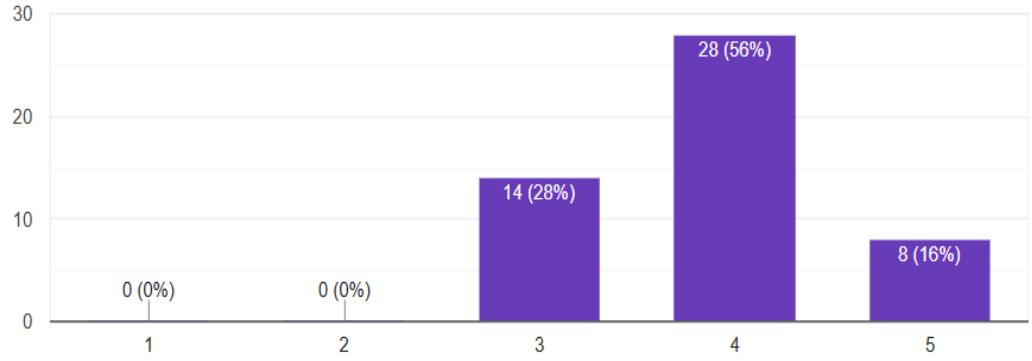

Figure 7. Accuracy Rating of Budgeting and Forecasting

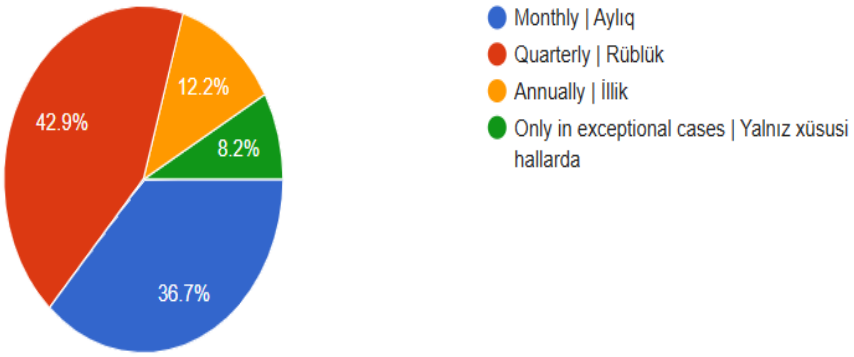

Figure 8. Frequency of Budget Review or Adjustment

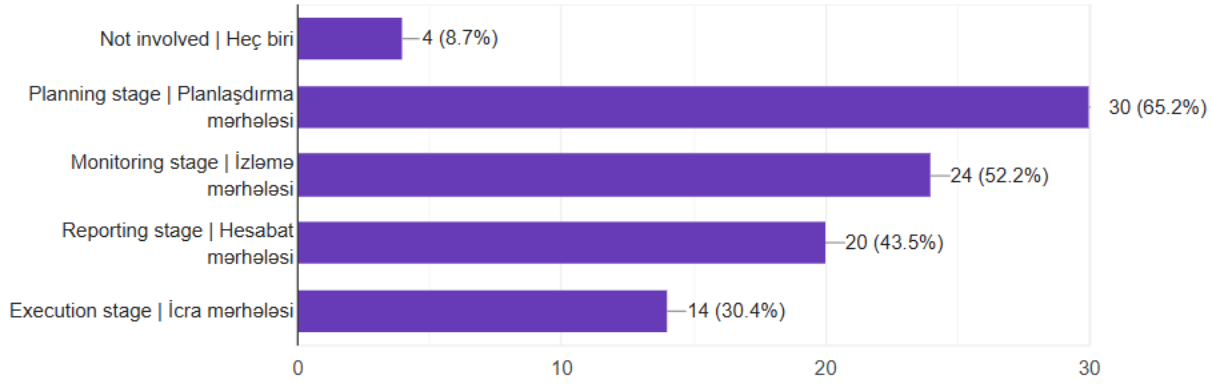

Figure 9. Department Involvement in Budgeting Stages

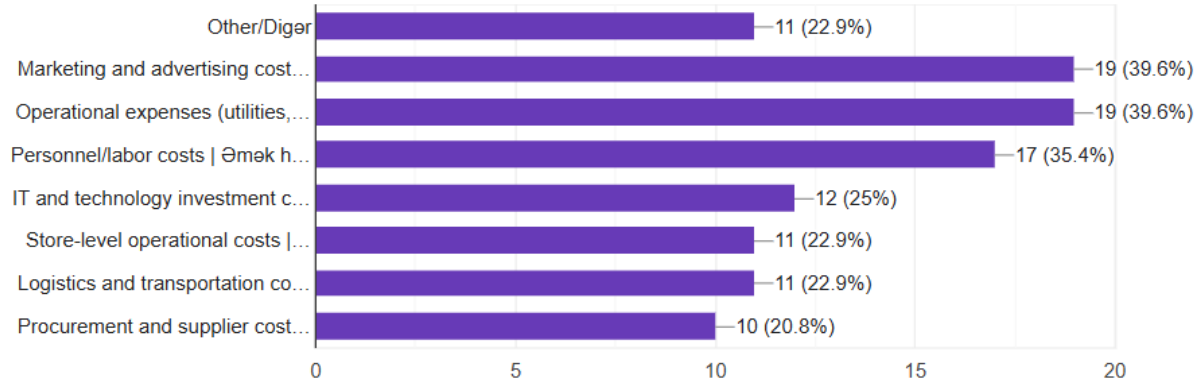

Figure 10. Main Cost Categories Managed by Department

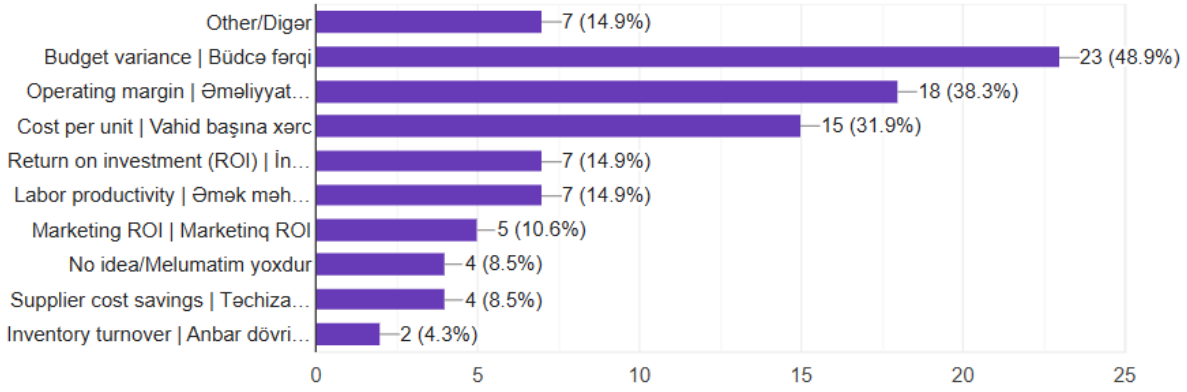

Figure 11. KPIs Tracked in Budgeting/Cost Control

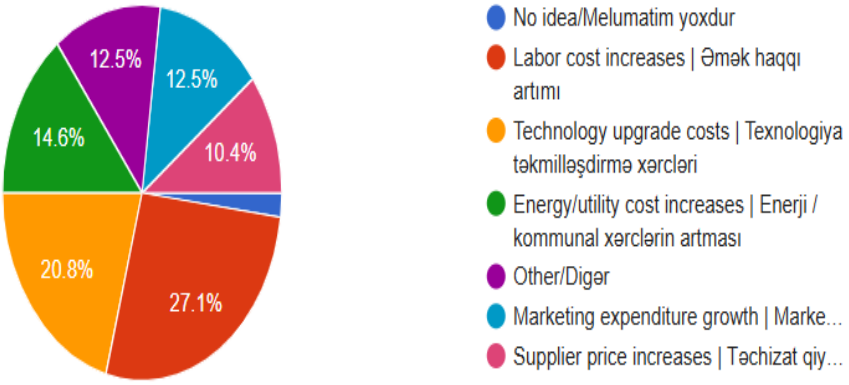

Figure 12. Primary Drivers of Cost Increases

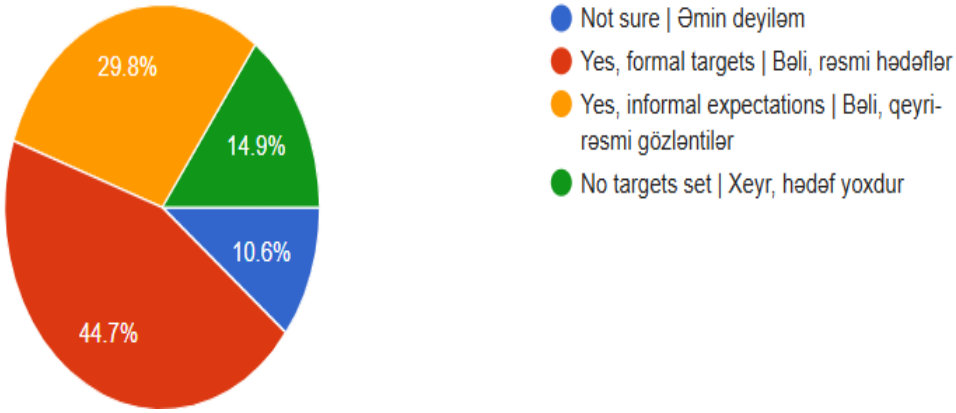

Figure 13. Annual Cost Reduction Target Setting

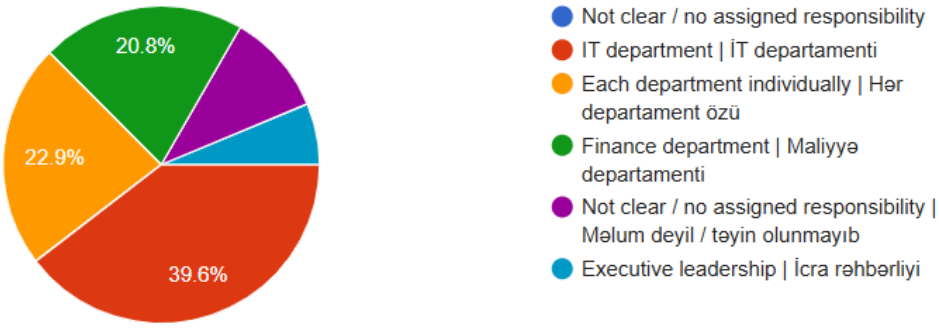

Figure 14. Responsible Function for Driving AI Adoption

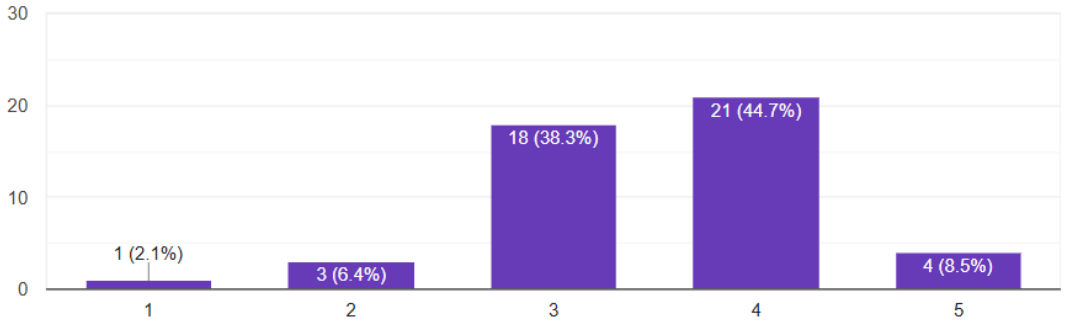

Figure 15. Confidence in AI Delivering Cost Savings

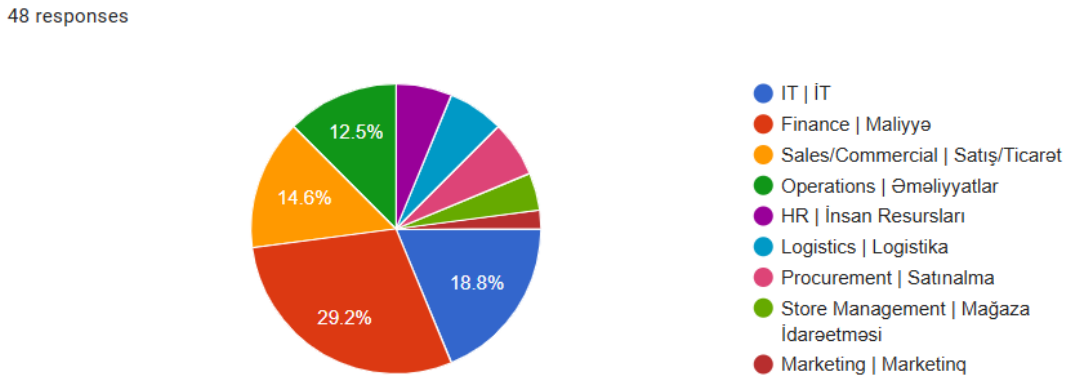

Figure 16. Departments Facing AI Adoption Challenges

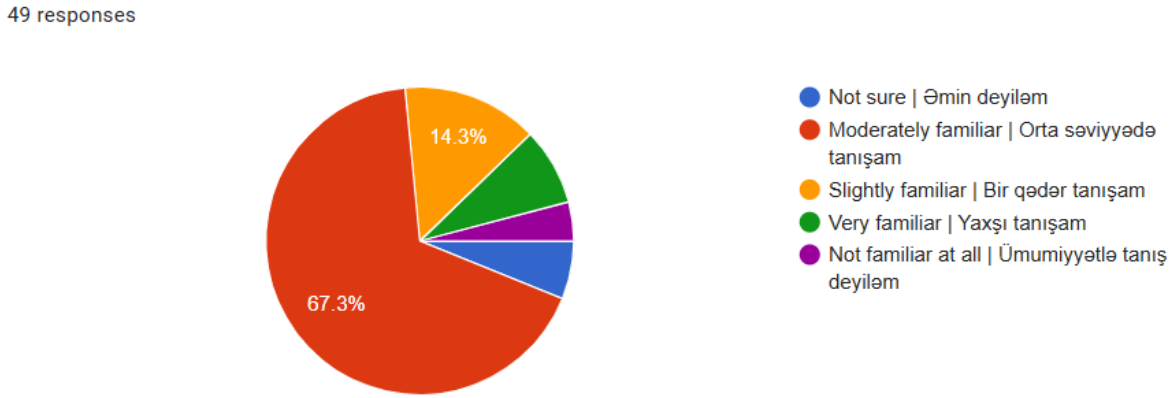

Figure 17. Respondents' Familiarity with AI Technologies in Financial Management

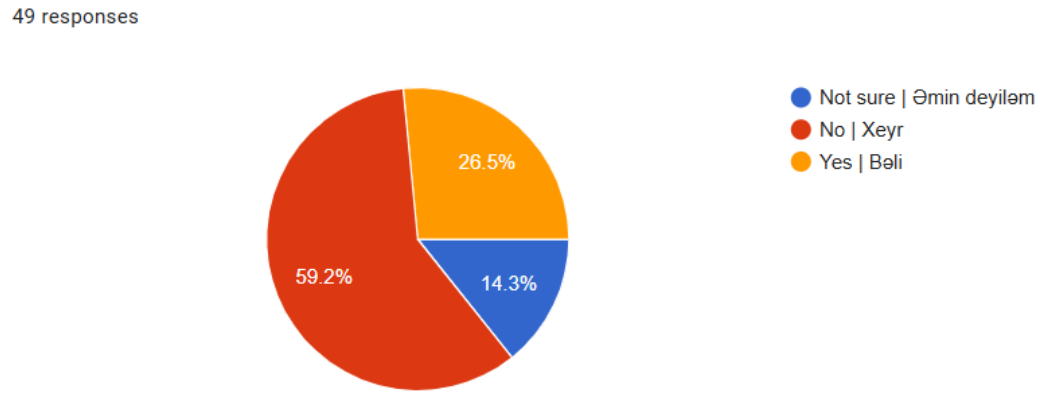

Figure 18. Use of AI and Automation Tools in Financial Management Among Respondents

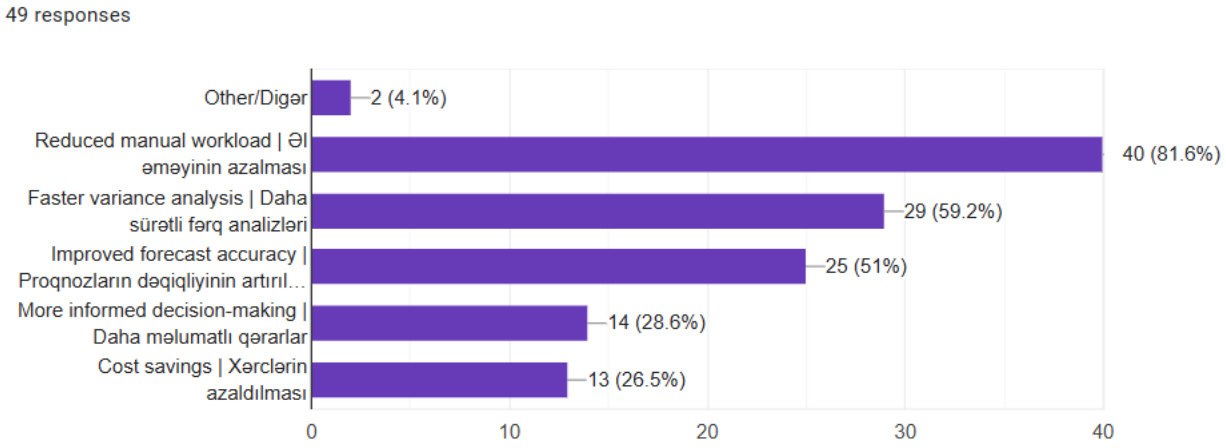

Figure 19. Perceived Benefits of AI in Budgeting and Cost Control

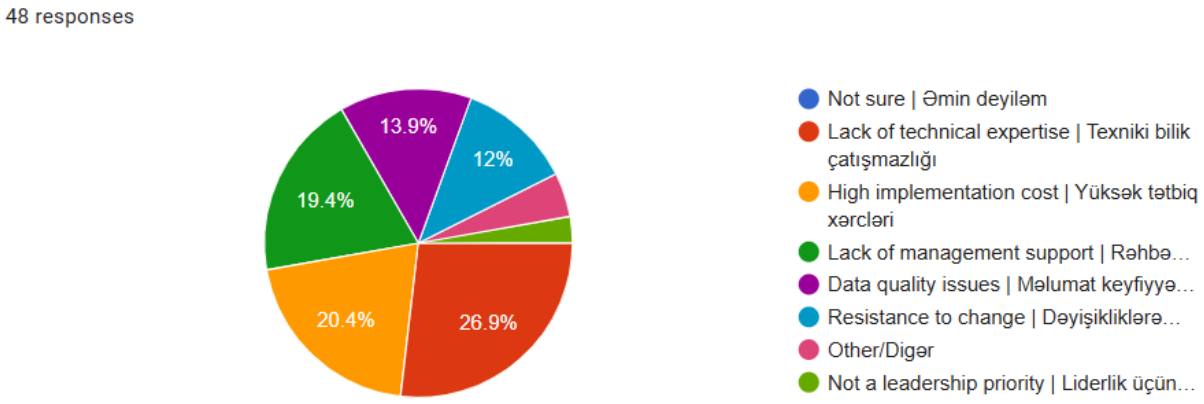

Figure 20. Barriers to AI Adoption in Financial Management

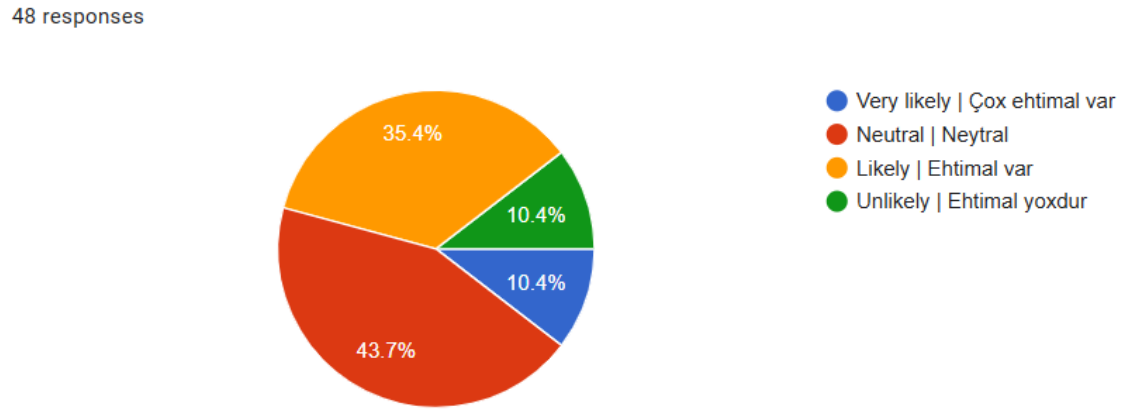

Figure 21. Likelihood of AI Adoption in Budgeting and Cost Control Within the Next 3 Years

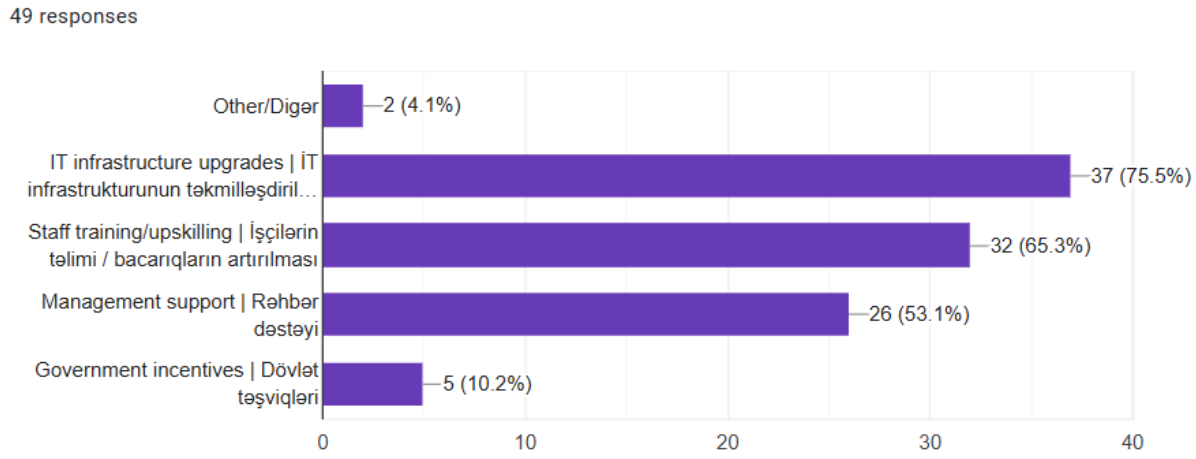

Figure 22. Key Enablers for Successful AI Adoption in Financial Processes

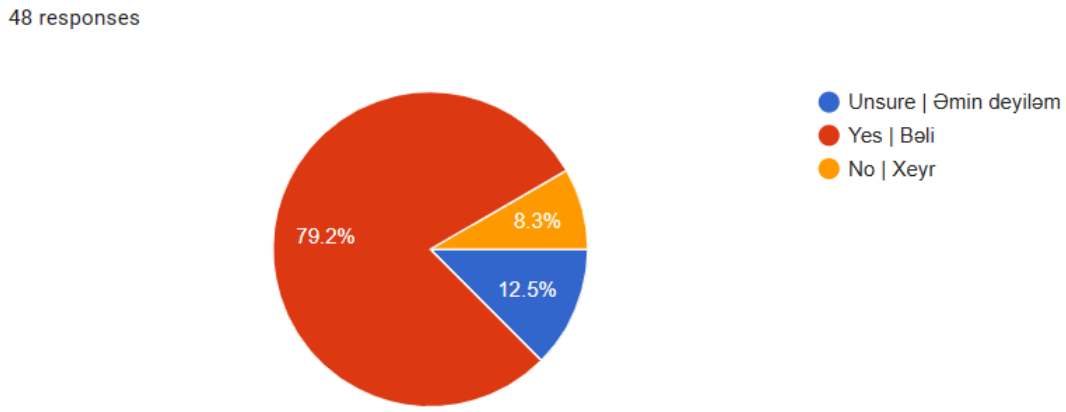

Figure 23. Methods for Measuring Cost Efficiency

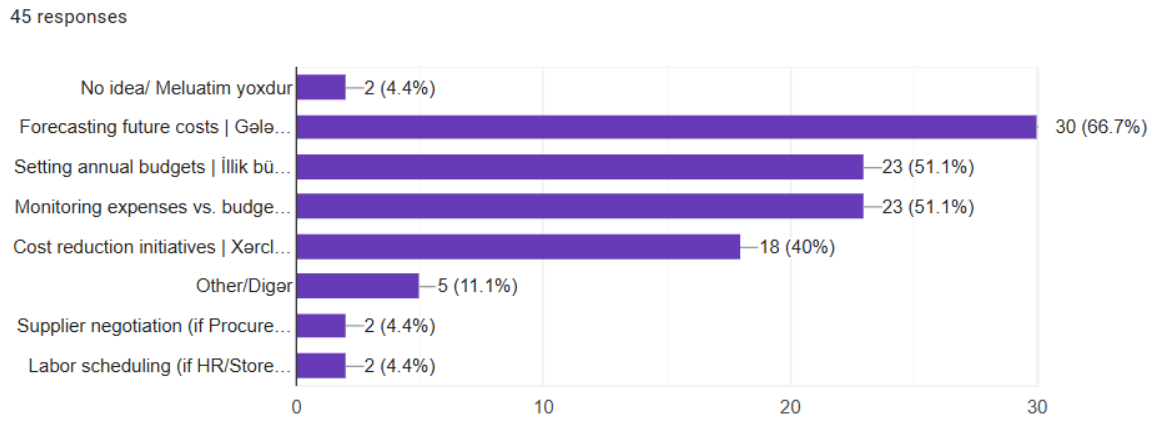

Figure 24. Individual Support for AI Adoption at the Departmental Level

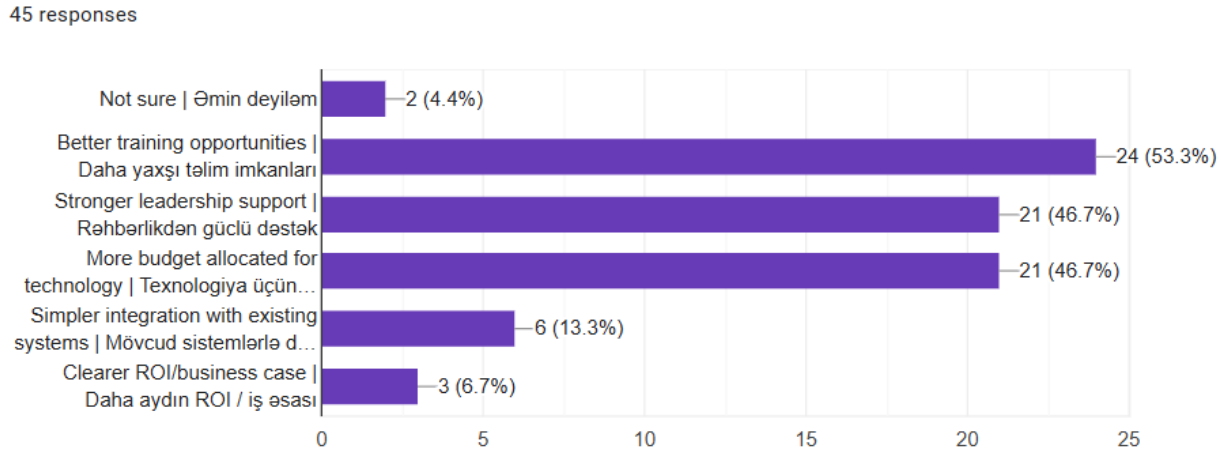

Figure 25. Factors That Would Facilitate AI Adoption at the Departmental Level

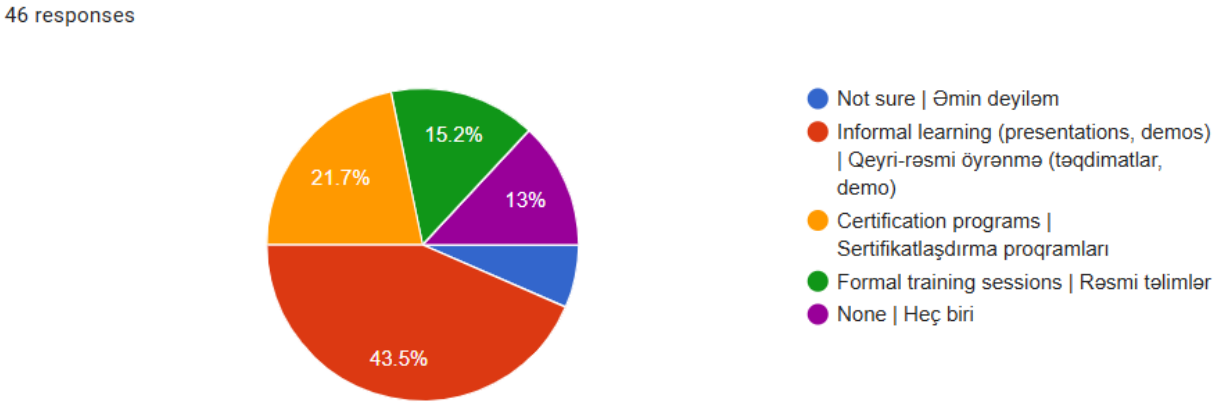

Figure 26. Level of AI-Related Training Provided to Departments

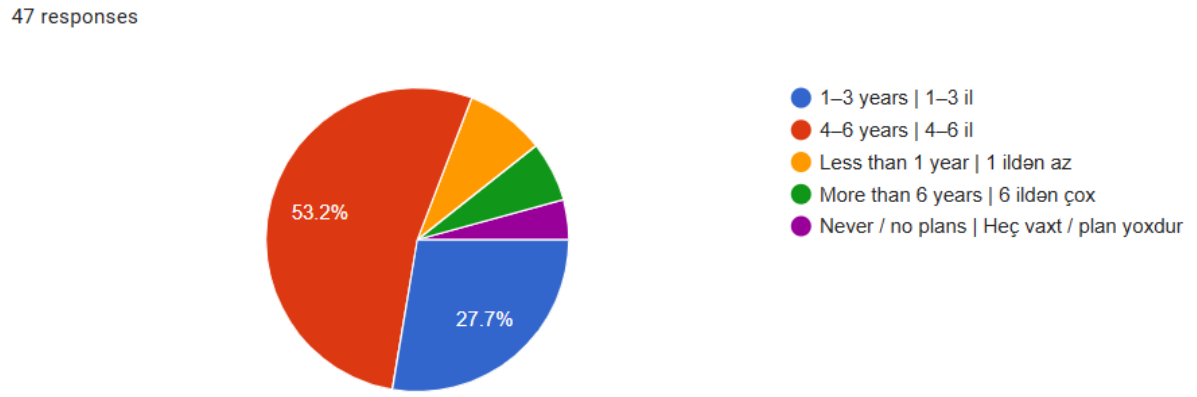

Figure 27. Expected Timeframe for AI to Have a Visible Impact at the Departmental Level

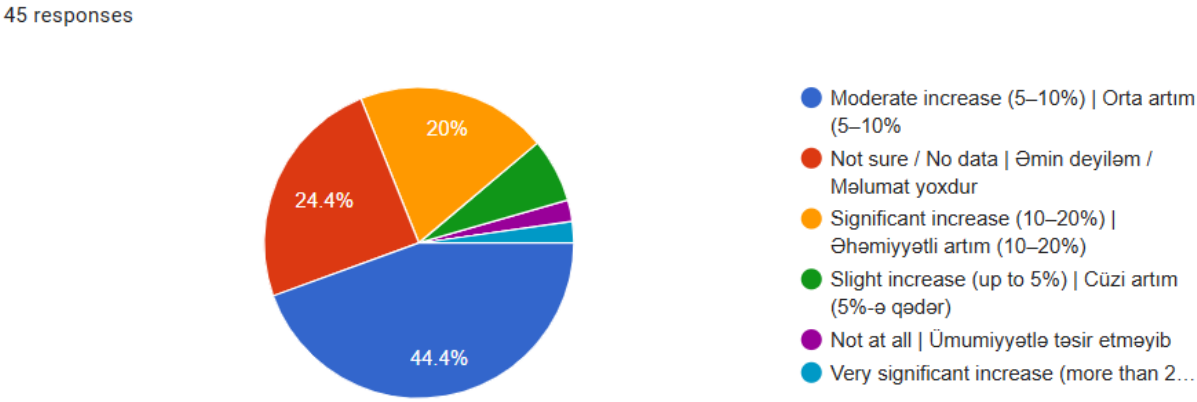

Figure 28. Perceived Contribution of AI and Technology to Revenue Growth

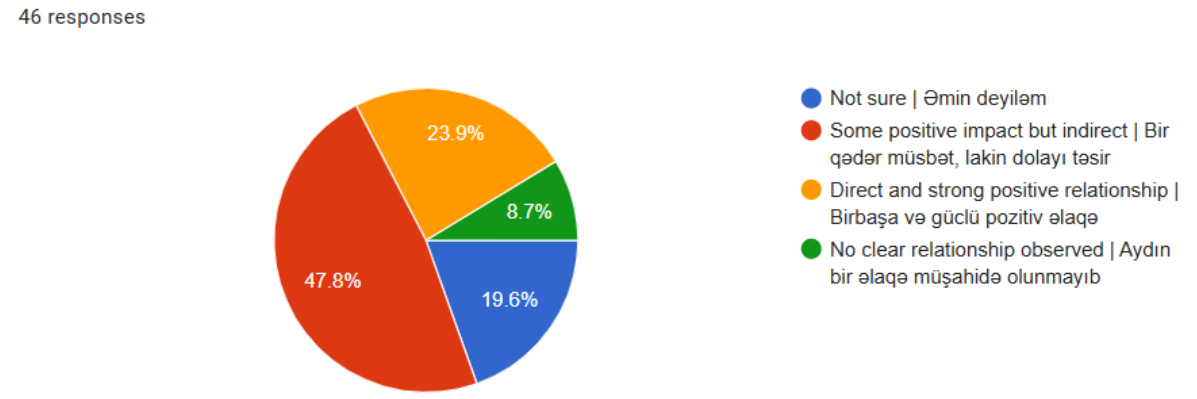

Figure 29. Impact of AI Adoption on Revenue Growth