American University Kyiv

A Capstone Project

ASSESSING THE IMPACT OF AI INTEGRATION ON BUSINESS EFFICIENCY AND PROFITABILITY:

A CASE STUDY ANALYSIS

ОЦІНКА ВПЛИВУ ІНТЕГРАЦІЇ ШІ НА ЕФЕКТИВНІСТЬ ТА ПРИБУТКОВІСТЬ БІЗНЕСУ:

АНАЛІЗ НА ОСНОВІ КЕЙСІВ

by **Oksana Tkachuk**

Presented in Partial Fulfillment of the Requirements

for the Degree

Master

APPROVED BY:

Hanna Shvindina, Dr.Sci. Prof., Faculty Mentor

2025

ABSTRACT

The **objective** of this research is to evaluate how artificial intelligence (AI) can enhance business productivity and efficiency, particularly in response to the labor shortage crisis. This shortage is driven by demographic shifts, economic and social factors, skills mismatches, economic uncertainties, and evolving work preferences. Industries such as technology, healthcare, manufacturing, construction, finance, and education are most affected. AI technology has the potential to address these challenges, as evidenced by reports indicating significant improvements in productivity and potential GDP growth. This research aims to assess the impact of AI on business efficiency and profitability using real-case examples and modeling through Profit and Loss Financial Statements. The **object** of research in this study is the **impact of AI technologies on business operations**, with a focus on **management-related aspects** such as operational efficiency, financial performance, and strategic integration. The research addresses the critical challenges posed by global labor shortages and evaluates how AI can transform managerial processes to enhance productivity, profitability, and competitiveness. The study will examine AI's effects on operational efficiency, and financial performance, and provide a framework and roadmap for successful AI integration.

Keywords: business efficiency, business operation, AI, profitability, productivity, efficiency, business impact, integration, cases.

ACKNOWLEDGMENTS

I would like to express my sincere gratitude to Hanna Shvindina for her invaluable guidance, support, and encouragement throughout the development of this paper. Her insightful feedback and timely advice were instrumental in shaping the direction and focus of my research.

I would also like to thank the American University of Kyiv for providing me with the opportunity to pursue a Dual Degree program and for fostering a stimulating academic environment. The university's commitment to academic excellence and its contribution to the development of education and the economy is commendable.

Finally, I would like to thank my classmates for their support and inspiration. Their intellectual power and dedication to learning have enriched my academic experience.

TABLE OF CONTENT

CHAPTER 1. INTRODUCTION

The global labor shortage, characterized by the gap between job openings and available qualified workers, poses a significant challenge for many industries. This shortage is exacerbated by demographic changes, economic and social factors such as the pandemic and restrictive immigration policies, a mismatch between rapidly evolving technological demands and the

educational system, and economic uncertainties including geopolitical events and trade tensions. (International Labour Organization, 2024) Additionally, the trend toward freelance work and flexible workplace policies further impacts the availability of the traditional workforce. (Boston Consulting Group, 2014)

AI technology presents a potential solution to these issues. Reports from Goldman Sachs suggest that generative AI tools could transform how many jobs are performed and raise global GDP by up to 7% (CNBC, 2023). McKinsey Global Institute (2023) estimates that about 30% of activities in 60% of occupations could be automated, creating new job opportunities. Furthermore, PwC (2023) notes that AI-exposed sectors can achieve 4.8 times higher growth in labor productivity and a 25% increase in skills change. Stanford and MIT research also supports AI's role in enhancing worker productivity by 14% (Bloomberg, 2023). Despite these promising figures, practical implementation and the real managerial and economic effects of AI are still underexplored. This research seeks to fill this gap by evaluating the impact of AI on business efficiency and profitability through base global studies and case studies.

Research Objectives:

1. To assess the **impact** of AI technologies on operational efficiency in various companies (via global studies)/
2. To evaluate the **financial effects** of AI implementation on profitability (via global studies assessment, modeling, and case studies).
3. To develop a **framework** for businesses to evaluate the ROI of AI investments.
4. To develop a **roadmap** for integrating AI into business operations.

Research Design

The research will employ a mixed-methods approach, combining qualitative and quantitative research methods with case study analysis.

Quantitative Data Collection:

- **Surveys:** To consolidate and structure data on efficiency and financial performance from businesses that have implemented AI. Financial statements and performance metrics pre- and post-AI implementation will be analyzed using comparison analysis.

- **Modeling:** Based on structured data, the Profit and Loss Statement (PnL) modeling is planned to quantify the potential impact on financial results with AI integration.

Qualitative Data Collection:

- **Interviews:** Conducted with key stakeholders in companies that have implemented AI.
- **Case Studies:** Detailed examinations of selected companies to understand their AI integration processes and outcomes. Validate findings in global studies comparing practical cases. Thematic analysis will be used to interpret interview transcripts and case study findings.

Expected Outcomes

- **Impact on Efficiency:** Insights into how AI improves operational processes, productivity, and cost efficiency.
- **Financial Impact:** Analysis of AI adoption's effect on profitability via PnL modeling.
- **Success Factors:** Identification of critical success factors and best practices for AI integration.
- **Framework and Roadmap:** Development of a framework for evaluating ROI on AI investments and a roadmap for integrating AI into business practices.

The research will summarize the main findings related to the impact of AI on business efficiency and profitability, discuss the implications of these findings for businesses considering AI integration as well as provide actionable recommendations for businesses and future research.

Thus, the paper is organized as indicated in **Figure 1**. First, a theoretical framework is presented to provide the necessary background and context for the topic. Subsequently, a comprehensive analysis of global qualitative research studies across diverse industries and countries is conducted and aggregated. Based on this empirical data, PnL modeling is employed to estimate potential scenarios of AI implementation within the business. This practical overview and modeling serve as the foundation for a concrete case evaluation aimed at identifying practical opportunities and limitations for the business. The study concludes with a summary of key findings and recommendations for future research endeavors.

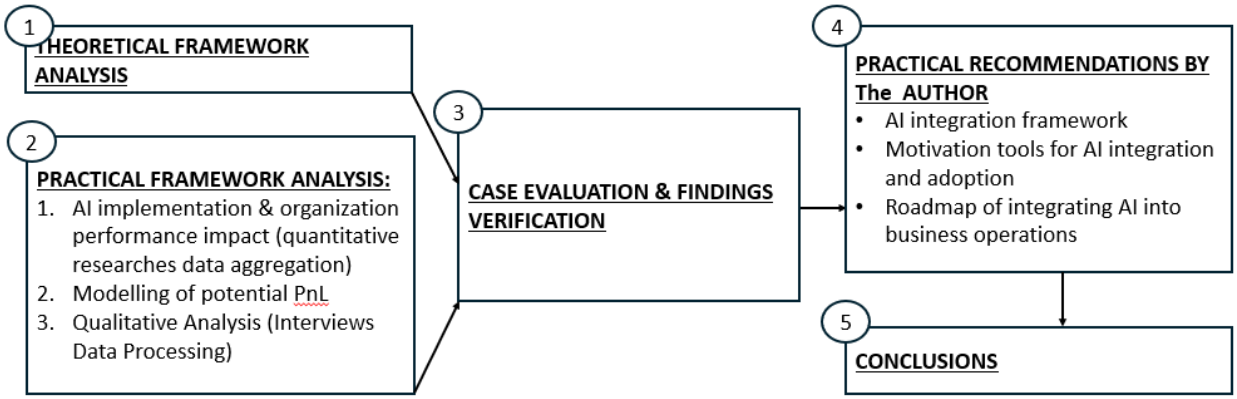


Figure 1. The workflow of research (organized by author).

CHAPTER 2. LITERATURE REVIEW

This annotated bibliography aims to provide a comprehensive overview of the top seminal works that have significantly contributed to understanding the impact of AI integration on business efficiency and profitability. By examining a strong theoretical foundation, identifying key research gaps, offering practical insights, and supporting arguments, these selected works will enhance the quality and depth of the Capstone research. The selected works explore various topics, including AI strategies and implementation methodologies, business case development, AI applications, and use cases, AI-driven efficiency improvements, AI's impact on profitability, and challenges and risks associated with AI. Through careful analysis of these seminal works, this annotated bibliography will provide valuable insights for further exploration of the transformative potential of AI in driving business success. This study became fundamental for theoretical framework exploration.

This section synthesizes insights from both published literature and contemporary research conducted by leading consulting and strategy firms, focusing on emerging trends and future projections. While a more extensive review of the literature was undertaken, this section also focuses on the key insights derived from research studies.

The Second Machine Age by Erik Brynjolfsson and Andrew McAfee (2014) introduces the concept of a new industrial revolution, driven by digital technologies and AI. The authors argue that this era is characterized by exponential technological growth, leading to increased productivity and economic prosperity. However, they also highlight the potential for job displacement and economic inequality. This work emphasizes the importance of adapting to the changing landscape and developing policies that mitigate negative consequences.

The Future of Work by Darrell M. West (2018) delves into the potential impact of AI on the future of work. The author discusses the potential for job displacement, the emergence of new job roles, and the need for workers to acquire new skills. West emphasizes the importance of investing in education and training to prepare the workforce for the AI era.

Artificial Intelligence: A Modern Approach by Stuart Russell and Peter Norvig (2021) provides a comprehensive overview of AI techniques and applications, from classical search algorithms to machine learning and natural language processing. The book underscores the ethical implications of AI development and the need for responsible AI design. It emphasizes the importance of aligning AI with human values and ensuring that it is used for the benefit of society.

Competing on Analytics by Thomas H. Davenport and Jeanne G. Harris (2007) explores the role of data analytics in driving business success. The authors argue that organizations that

effectively harness the power of data can gain a significant competitive advantage. This book emphasizes the importance of data-driven decision-making, data quality, and analytical talent. It provides practical insights into how organizations can leverage data to improve performance.

AI for Business by Oliver Bonfiglio (2018) provides a practical guide to implementing AI in businesses. The book covers a range of topics, including identifying use cases, building AI teams, and measuring ROI. Bonfiglio emphasizes the importance of aligning AI initiatives with business goals and addressing potential challenges such as data quality and ethical considerations.

Artificial Intelligence (AI): Multidisciplinary Perspectives on Emerging Challenges by Y. K. Dwivedi, S. Kumar, and S. Mishra (2021) explores the ethical, legal, social, and technical challenges associated with AI development and deployment. The authors highlight the importance of responsible AI development and the need for multidisciplinary collaboration to address these challenges.

The rapid evolution of AI technology has outpaced traditional theoretical frameworks and textbook knowledge. To stay abreast of the latest trends and insights, it is crucial to explore contemporary research studies and industry reports. These sources offer valuable perspectives on the practical applications, economic implications, and societal impact of AI. Prominent consulting firms and research institutions have published insightful reports on various aspects of AI. Boston Consulting Group's 2023 report on AI adoption provides valuable insights into the current state of AI adoption across industries. Deloitte's State of Generative AI in the Enterprise reports offer a detailed analysis of the rapid growth and potential of generative AI. Capgemini's World AI Report 2023 provides a comprehensive overview of global AI trends, while Techno Vision 2024 explores the future of AI-driven innovation. CB Insights' Enterprise AI Roadmap delves into the evolving AI development platform landscape and its impact on business strategies. McKinsey's Global Survey on the state of AI in 2023 highlights the significant impact of generative AI on various industries. Their report on the economic potential of generative AI underscores its potential to drive productivity growth. Accenture's 2023 report on the new era of generative AI explores the democratization of AI and its implications for businesses and individuals. Goldman Sachs' Global Investment Research 2024 provides valuable insights into the investment landscape for AI-related technologies. MIT Technology Review Insights 2023 offers a technical perspective on AI advancements and their potential applications. Finally, the Davos Report 2024 on How Generative AI is Transforming Business and Society (Oliver Wyman Forum) provides a high-level overview of the societal implications of AI.

By exploring these contemporary research studies, we can gain a deeper understanding of the latest trends, challenges, and opportunities in the field of AI. This knowledge will enable us to make informed decisions, anticipate future developments, and leverage AI to drive innovation and solve complex problems. Figures from these reports were structured and aggregated to become a fundamental part of PnL modeling and practical case study verification.

CHAPTER 3. THEORETICAL FRAMEWORK

The influence of artificial intelligence (AI) on business efficiency and profitability is a multifaceted topic, encompassing various theoretical frameworks and practical applications. The integration of AI in business processes is transformative, driving efficiency, enhancing decision-making, and ultimately improving profitability. (Bonfiglio 2018) The theoretical frameworks provide a robust foundation for understanding how AI influences various aspects of business operations, from customer interactions to operational strategies. Thus, let us frame core concept used within this Capstone.

Artificial Intelligence (AI) refers to the simulation of human intelligence processes by machines, particularly computer systems. These processes include learning (the acquisition of information and rules for using it), reasoning (the use of rules to reach approximate or definite conclusions), and self-correction. AI aims to create systems that can perform tasks that typically require human intelligence, such as understanding natural language, recognizing patterns, solving problems, and making decisions (Russell, 2021).

Historically the groundwork for AI began in the 1940s and 1950s with pioneers like Warren McCulloch and Walter Pitts, who introduced neural networks, and Alan Turing, proposed the Turing Test to evaluate machine intelligence. The term "artificial intelligence" was officially coined at the Dartmouth Conference in 1956, marking the birth of AI as a distinct field. However, the initial excitement was followed by an "AI winter" during the 1970s, characterized by reduced funding and interest due to unmet expectations and slower-than-anticipated progress.

The 1980s saw a resurgence in AI research, fueled by the development of expert systems that could replicate human expertise in specific domains, leading to practical applications in finance and manufacturing. As the focus shifted to machine learning in the late 20th century, advancements like backpropagation revitalized neural networks. The rise of the internet in the 1990s and 2000s provided vast datasets, further expanding AI’s reach into natural language processing and computer vision. The deep learning revolution of the 2010s transformed AI capabilities, highlighted by breakthroughs such as the ImageNet competition and DeepMind's AlphaGo. In today's Mainstream Adoption era, AI systems possess a variety of advanced features that enable them to perform complex tasks and deliver significant value across numerous applications. (Musiol, 2024)

The **core role** of Artificial Intelligence (AI) encompasses a variety of functions that significantly enhance technology, business, and daily life. One of the primary roles of AI is the automation of repetitive tasks, which allows human workers to focus on more complex and creative endeavors,

thus improving efficiency and reducing operational costs. Additionally, AI excels at processing and analyzing large volumes of data quickly, identifying patterns and trends that enable data-driven decision-making. By providing predictive analytics and real-time insights, AI supports organizations in making informed strategic choices. Furthermore, AI enhances personalization by analyzing user preferences and behaviors, allowing businesses to tailor recommendations and communications to individual customers. (Davos, 2024)

The **core features** of Artificial Intelligence (AI) enable it to perform complex tasks and deliver valuable insights across various applications. One of the primary features is machine learning, which allows AI systems to learn from data and improve their performance over time without explicit programming. Natural Language Processing (NLP) enhances AI's ability to understand, interpret, and generate human language, facilitating applications like chatbots and virtual assistants. Computer vision is another key capability, enabling AI to analyze visual data for tasks such as image and facial recognition. Additionally, AI automates repetitive tasks, improving efficiency and reducing human error. (Brynjolfsson, 2014)

Predictive analytics is crucial for forecasting future outcomes based on historical data, aiding businesses in making informed decisions. Personalization allows AI to customize experiences based on user behavior and preferences, particularly in recommendations across platforms. Adaptive learning ensures that AI systems can evolve with new information, enhancing their functionality over time. Furthermore, AI excels at problem-solving by analyzing data to optimize processes in various fields. Its robust data processing capabilities allow for the efficient handling of vast amounts of information, extracting meaningful insights quickly. Finally, interactivity features enable more natural user engagement with technology, making AI systems intuitive and user-friendly. Together, these features drive innovation and efficiency across numerous domains. (Brynjolfsson, 2014)

Artificial Intelligence (AI) can be **categorized** into several types **based on capabilities and functionalities**. The most common classification distinguishes between Narrow AI and General AI. Narrow AI, also known as Weak AI, refers to systems designed to perform specific tasks, such as virtual assistants like Siri or Alexa, which can handle inquiries but lack general understanding. In contrast, General AI, or Strong AI, aims to replicate human cognitive abilities across a wide range of tasks, though this type of AI remains largely theoretical and has not yet been realized. Additionally, AI can be classified based on its functionalities into several types. Reactive Machines are basic AI systems that respond to specific stimuli without memory or learning capabilities, such as IBM's Deep Blue chess program. Limited Memory AI can use past experiences to inform decisions, commonly found in self-driving cars that learn from previous

driving data. The concept of Theory of Mind AI refers to systems that would understand human emotions and intentions, a stage still in research. Finally, Self-aware AI represents the most advanced type, possessing consciousness and self-awareness, though this remains purely hypothetical. Together, these classifications help to understand the diverse applications and developmental stages of AI technologies. (Musiol,2024)

Artificial Intelligence (AI) offers a range of significant **benefits** and drawbacks that organizations and individuals must carefully consider. Among the core benefits, AI increases efficiency and productivity by automating repetitive tasks, allowing human workers to focus on more complex activities. It excels in data analysis, processing vast amounts of information quickly to uncover patterns and insights that inform better decision-making. AI also enhances personalization, enabling businesses to deliver tailored experiences based on user preferences, which improves customer satisfaction. Additionally, it can lead to cost savings by streamlining operations and minimizing human error, providing 24/7 availability for consistent service. Furthermore, AI drives innovation, enabling new products and business models that transform various industries. (McKinsey, 2024)

However, the adoption of AI also presents several **drawbacks**. One major concern is job displacement, as automation may lead to job losses in certain sectors, raising issues of unemployment and the need for workforce retraining. AI systems can inherit biases from their training data, resulting in unfair outcomes in critical areas like hiring and law enforcement. The high implementation costs associated with developing AI solutions can also be a barrier, requiring significant investment in technology and talent. Moreover, dependence on AI technology may lead to vulnerabilities if systems fail or produce incorrect results, while privacy concerns arise from the collection and analysis of personal data. Ethical dilemmas are prevalent as well, especially in applications like surveillance and autonomous weapons. Lastly, the complexity and lack of transparency in AI algorithms can pose challenges to accountability and understanding decision-making processes. Balancing these benefits and drawbacks is crucial for maximizing AI's potential while addressing its risks. (Deloitte, 2023)

In this Capstone project, the primary focus of exploration will be on the beneficial aspects of AI, specifically its impact on enhancing efficiency and productivity. The Profit and Loss statement will be utilized as a modeling tool to substantiate these findings.

A **Profit and Loss (PnL)** statement, also known as an income statement, is a crucial financial document that summarizes a company's revenues, costs, and expenses over a specific period, typically a fiscal quarter or year. It provides valuable insights into the company's financial

performance by highlighting its ability to generate profit through a comparison of revenue against incurred costs. The key components of a PnL statement include revenue, which reflects the total income generated from sales before any expenses are deducted; Cost of Goods Sold (**COGS**), representing the direct costs associated with producing goods or services, and from which gross profit is derived. **Gross profit** is calculated by subtracting COGS from total revenue, serving as a measure of production efficiency. (Ormiston, 2015)

The statement also details **operating expenses**, which include costs necessary for running the business but not directly tied to production, such as selling, general, and administrative expenses, along with depreciation and amortization. From gross profit, operating expenses are subtracted to yield **operating income**, reflecting profit generated from core business activities. Additional income and expenses not related to core operations are included in the section for other income and expenses. The statement culminates in **net income before tax**, which accounts for income earned before taxes, and income tax expense, representing the taxes owed on earnings. Finally, **net income**—the bottom line—shows the overall profit or loss for the period, providing a comprehensive view of the company's profitability and financial health. (Ormiston, 2015)

To demonstrate how Artificial Intelligence (AI) contributes to efficiency and productivity increases using a Profit and Loss (P&L) statement, several key steps can be taken:

1. **Identify Relevant Metrics**: Focus on metrics like revenue growth, cost savings, and operating expenses that reflect AI's impact.
2. **Analyze Revenue Growth**: Evaluate whether AI initiatives, such as enhanced customer personalization or optimized marketing, have led to increased sales. Compare periods before and after AI implementation.
3. **Assess Cost Reductions**: Examine the Cost of Goods Sold (COGS) and operating expenses to see if AI has streamlined operations and reduced costs.
4. **Evaluate Profit Margins**: Look at gross and operating profit margins; increases can indicate improved operational efficiency due to AI.
5. **Link AI to Financial Outcomes**: Establish connections between specific AI initiatives and financial results, demonstrating how AI-driven changes lead to improved metrics.
6. **Conduct Comparative Analysis**: Compare your P&L results with industry benchmarks to highlight AI's effectiveness relative to competitors.

AI can significantly enhance a company's financial performance. By identifying relevant metrics like revenue growth and cost savings, businesses can analyze how AI initiatives, such as personalized marketing and automated processes, have led to increased sales and reduced

expenses. AI's impact can be seen in improved profit margins, streamlined operations, and reduced risks. Therefore, This information on impact is planned to be collected from various reports and model the potential impact of AI integration.

CHAPTER 4. PRACTICAL FRAMEWORK

4.1 Link between AI implementation & Organizational Performance: findings from global reports (aggregated by author)

Organizations can effectively use PnL statements to show the positive financial impact of AI initiatives. Thus, according to 2024 McKinsey & Company report, “predictive maintenance can reduce maintenance costs by up to 30%” and “increase equipment uptime by 20%”. Additionally, research from Deloitte 2023 shows that “organizations that implement predictive maintenance strategies can achieve a 10-20% reduction in maintenance costs and a 70-75% decrease in breakdowns. A study by IBM found that predictive maintenance can increase asset utilization by up to 20% and reduce maintenance costs by up to 25%”. (MoldStud, 2024)

Here are several examples of how AI has significantly impacted operational efficiency, along with resources for further exploration. In manufacturing, according to a case study by PwC, Siemens was able to “increase productivity by 20% by implementing predictive maintenance AI. This has allowed them to produce more efficiently and meet customer demands promptly.” (MoldStud, 2024) In the retail sector, Walmart utilizes AI for inventory optimization, achieving a 10% reduction in inventory costs and a 15% increase in sales due to improved stock availability. (Walmart's Marketing Report, 2021) Walmart's AI-powered robots can scan shelves up to 10 times faster than human employees, reducing the time it takes to restock shelves by up to 50%. This has improved inventory accuracy by up to 20% and reduced labor costs by up to 15%. (LinkedIn, 2024)

In logistics, DHL employs AI for route optimization, which has led to a 15% reduction in fuel consumption and a 30% increase in on-time deliveries (DHL, 2023). According to a report by Deloitte, Shell was able to “reduce maintenance costs by up to 30% and increase production efficiency by 10% through the implementation of predictive maintenance AI”. This has allowed them to operate more sustainably and minimize the environmental impact of their operations. (MoldStud, 2024). These examples illustrate how AI has transformed operational efficiency across various industries, showcasing real-world applications and their financial benefits.

Big consulting companies including McKinsey & Company, Boston Consulting Group (BCG), Deloitte, and many others have published several reports analyzing the impact of Artificial Intelligence (AI) on business efficiency across various sectors. Once the AI technology is new and evolving latest researches help to navigate better in collecting the latest efficiency rates and implementation metrics. Here’s a summary of key findings from these reports regarding how AI enhances operational efficiency and productivity, along with numerical insights.

Overall, impact McKinsey estimates that AI could contribute up to $13 trillion to the global economy by 2030, with productivity gains of 20-25% for businesses that effectively implement AI. (McKinsey, 2018). Sector-Specific Insights (McKinsey, 2023): AI can improve operational efficiency by up to 30% through predictive maintenance in manufacturing, AI-driven inventory management can enhance efficiency by 10-15% in retail, AI can boost productivity by 20-25% through improved diagnostics in healthcare, AI enhances efficiency by 20-30% in fraud in finance, effective AI integration can increase employee productivity by 25-40% in HR, organizations investing in AI can see a ROI of 5-10 times within a few years in investment.

Applying global studies data to a line-by-line analysis of how AI applications can produce beneficial effects on a Profit and Loss (PnL) statement, highlighting specific areas of impact for business. (McKinsey, 2023)

Revenue (Sales) AI Impact: AI-driven tools, such as customer analytics and personalized marketing, can enhance customer engagement and drive sales growth from 10% to 30% depending on the industry. For example, retail companies utilizing AI for customer personalization may achieve sales growth of 15-20%, while financial services can enhance revenue by 20-30% through improved risk assessment and fraud detection.

Cost of Goods Sold (COGS) AI Impact: AI can optimize supply chain management and inventory control, reducing waste and lowering production costs. Businesses have seen reductions in COGS by approximately 10-15% through efficient resource allocation.

Gross Profit AI Impact: As revenue increases and COGS decreases due to AI applications, gross profit improves. This metric reflects the effectiveness of AI in enhancing overall profitability from core operations. Businesses can increase their gross profit by approximately 15% to 25%.

Operating Expenses AI Impact: Automation of administrative tasks through AI (e.g., chatbots for customer service and AI-driven HR processes) can significantly reduce operating expenses. Organizations have reported cuts in these costs by 15-25%.

Research and Development (R&D) AI Impact: AI can accelerate product development and innovation processes, leading to faster time-to-market. By improving the efficiency of R&D, companies can potentially increase their investment in innovation without proportionally increasing R&D costs. When applying AI, companies can optimize their R&D expenses by reducing costs by approximately 15% to 25%. This optimization occurs through improved data

analysis, accelerated project timelines, and enhanced collaboration, allowing for more efficient allocation of resources and faster innovation cycles

Sales and Marketing Expenses AI Impact: AI enhances the effectiveness of marketing strategies through better targeting and customer insights, allowing companies to achieve higher conversion rates. This can result in a reduction in the overall marketing spend required to achieve sales targets to the level of 15% to 30%.

Operating Income AI Impact: With increased revenue and reduced operating expenses, operating income is likely to improve 20% - 30%. AI's efficiency in various operational areas contributes to a stronger operating income.

Other Income and Expenses AI Impact: AI can optimize financial operations from 10% to 20%, such as predictive analytics for investment decisions, leading to better financial outcomes. Improved risk management through AI can also reduce unexpected expenses.

Net Income Before Tax AI Impact: The cumulative effect of higher revenue, reduced costs, and improved operational efficiency leads to an increase in net income before tax, reflecting the overall financial health of the business is estimated at the level of 15% to 25%.

Income Tax Expense AI Impact: While this line item is affected by net income, effective AI applications can streamline tax compliance processes, potentially reducing tax preparation costs from 10% to 15%

Net Income (Net Profit or Loss) AI Impact: Ultimately, the efficiencies gained through AI lead to increased net income, which is critical for business sustainability and growth. Companies leveraging AI have reported net income growth rates of 10-30% in the years following implementation.

This overview provides a solid foundation for the next stage of PnL modeling based on quantitative data analysis aggregation. By identifying relevant metrics and analyzing the impact of AI initiatives, businesses can gain valuable insights into their financial performance to optimize operations, reduce costs, and drive revenue growth, ultimately leading to improved profitability and a stronger competitive position.

4.2. PnL modeling based on quantitative data analysis (explored by author)

Based on earlier explorations the modeling below provides a clear visualization of how AI integration can positively impact various line items on the Profit and Loss statement, highlighting the potential for significant profitability increases through enhanced productivity.

To assess the impact we will construct minimum and maximum scenarios to estimate the potential range of AI's impact on the Profit and Loss (P&L) statement to observe the potential impact spread. We'll establish a range of productivity increases for each line item and calculate the projected values accordingly.

Minimum and Maximum Scenarios

Assumptions:

- **Minimum Productivity Increase**: 10% for Revenue, -5% for COGS, -5% for Operating Expenses, 3% for Other Income.
- **Maximum Productivity Increase**: 30% for Revenue, -20% for COGS, -15% for Operating Expenses, 10% for Other Income.

Table 1. Excel Model Structure with Minimum and Maximum Scenarios

Line Item	Current Value	Minimum Productivity Increase (%)	Max Productivity Increase (%)	Min Projected Value	Max Projected Value	Min Impact on Profit	Max Impact on Profit
Revenue	$1,000,000	10%	30%	$1,100,000	$1,300,000	$100,000	$300,000
Cost of Goods Sold (COGS)	$600,000	-5%	-20%	$570,000	$480,000	$30,000	$120,000
Gross Profit	$400,000			$530,000	$820,000	$130,000	$420,000
Operating Expenses	$250,000	-5%	-15%	$237,500	$212,500	$12,500	$37,500
Operating Income	$150,000			$292,500	$607,500	$142,500	$457,500
Other Income and Expenses	$20,000	3%	10%	$20,600	$22,000	$600	$2,000
Net Income Before Tax	$170,000			$313,100	$629,500	$143,100	$459,500

Income Tax Expense (20%)	$34,000			$62,620	$125,900	$28,620	$91,900
Net Income	**$136,000**			**$250,480**	**$503,600**	**$114,480**	**$367,600**

Source: Modelling developed by author using aggregation of quantitively research data and PnL framework.

Explanation of Calculated Values:

1. **Revenue**: Increases from $1,000,000 to $1,100,000 (min) or $1,300,000 (max).
2. **COGS**: Decreases to $570,000 (min) or $480,000 (max).
3. **Gross Profit**: Calculated as Revenue minus COGS, resulting in $530,000 (min) or $820,000 (max).
4. **Operating Expenses**: Reduces to $237,500 (min) or $212,500 (max).
5. **Operating Income**: Calculated as Gross Profit minus Operating Expenses, yielding $292,500 (min) or $607,500 (max).
6. **Other Income**: Increases to $20,600 (min) or $22,000 (max).
7. **Net Income Before Tax**: The total of Operating Income and Other Income, resulting in $313,100 (min) or $629,500 (max).
8. **Income Tax Expense (20%)**: Calculated based on Net Income Before Tax, leading to $62,620 (min) or $125,900 (max).
9. **Net Income**: Calculated as Net Income Before Tax minus Income Tax Expense, resulting in $250,480 (min) or $503,600 (max).

This modeling presents a hypothetical model illustrating the potential impact of AI integration on a company's PnL statement, considering minimum and maximum scenarios for productivity increases and cost reductions. It's important to note that achieving these significant impacts requires careful AI integration, substantial investment, and solid time. Realizing such dramatic improvements will depend on a well-defined AI strategy, robust data infrastructure, and skilled workforce. While AI offers immense potential, it's crucial to approach its implementation with realistic expectations and a clear roadmap. On top of that, it is important to validate if such effects are observed in practical cases of AI integration.

4.3 Main results of Qualitative Analysis (Interviews Processing, explored by author)

This module provides an in-depth examination of how global trends apply to the Ukrainian context of AI's implementation. For this, ten one-hour interviews with AI experts implementing AI technologies in Ukraine and globally (3 people), AI practitioners in business implementing AI (4 people) and IT specialists handling AI implementation (3 people), were conducted based on eleven core questions capturing AI trends: level and stages of AI integration, Ukrainian context, benefits, and challenges of AI integration, cost involved and ROI and impact on business as well what should be implemented next to ensure speed and efficiency of this integration. Detailed questionnaire forms and the most prominent interviews are given in the appendix.

Table 2. Verification of Global reports

Question	**Global reports aggregation**	**Verification through experts**
What is the level of AI integration to the companies?	The global average is 36% (Vention, 2023), rapidly increasing, with many businesses leveraging AI for various tasks and functions	"AI is revolutionizing industries. The level of integration varies, but the trend is clear: more and more businesses are recognizing the potential of AI"
At what stage are the companies integrating AI?	Companies are at various stages of AI integration, from early experimentation to full-scale implementation across multiple business functions	"Many companies are starting to experiment with AI. While some are still in the early stages of exploration, others are already seeing significant benefits from AI-powered solutions"
What stage is Ukraine at?	No data is available in global reports. Only Statista 2024 gives the market estimation of US$316.30m in 2024 and CAGR 2024-2030) of 28.44%	"As I've mentioned, Ukraine is far behind this metric (the global average is 36%). If to take the general model of adoption I would say that we are at the awareness to exploration stage, though it is dependent on the company. Many companies are piloting some AI instruments. However, there is no clear study on that as the level of

		trial is too low and the business is too dispersed.”
What are the potential benefits of using AI for organizations?	Increased efficiency, improved decision-making, enhanced customer experiences, and innovative product development.	The same benefits for Ukraine. An additional factor is covering the gap of labor shortage forced by the War in Ukraine.
How can AI be used to improve decision-making processes within organizations?	AI can enhance decision-making by providing data-driven insights and automating complex analyses.	The same as for the global perspective
What are the biggest challenges companies face when implementing AI solutions?	Companies face challenges such as data quality, ethical concerns, lack of skilled talent, and difficulty in demonstrating the business value of AI, cost of implementation and operational model change need	An additional challenge is the cost of AI integration behind limitation of the investments in wartime.
What potential risks are associated with AI?	AI poses potential risks such as job displacement, algorithmic bias, privacy concerns, and ethics.	The same as for the global perspective
What are the costs involved in implementing and maintaining AI solutions?	Implementing and maintaining AI solutions involves costs related to data acquisition, model development, infrastructure, talent acquisition, and ongoing maintenance.	“The cost varies, but it can be significant. Simple AI models can start around $5,000, while more complex ones with deep learning are from $50,000 to over $500,000. In detail, custom or Off-the-Shelf can be time-consuming and expensive: $5000-$100,000. Prototype Development starts from $15000 and requires resources and expertise. Software Cost is $10,000-$20,000. Ongoing maintenance and updates are

		essential, which costs upwards of $20,000/year."
How can companies effectively measure the ROI of AI initiatives?	Companies can measure AI ROI by tracking key performance indicators (KPIs) such as increased revenue, cost savings, improved efficiency, and enhanced customer satisfaction. Global reports claim that the average ROI is 57%	"In Ukraine, I have not seen a clear summary of the impact evaluation. Pilots can show early ROI impact but UA companies do not usually share this "confidential" data."
How should companies foster the implementation of AI?	Companies should foster AI implementation by investing in training, promoting a culture of innovation, collaborating with AI experts, and adopting a strategic approach to AI adoption.	The same recommendations
What specific focus on education and motivation should be applied?	Integrating AI should prioritize education and motivation to equip employees with the skills to leverage AI effectively.	The same recommendations

Source: Verification developed by author using aggregation of qualitative research data and interviews results.

Summarizing the core results of the verification all experts claimed that full integration of AI into business is limited in scale as is dependent on the AI adoption level specific by countries, industries, and companies. Factors such as market conditions, regulatory environments, and the maturity of AI adoption can influence the extent of optimization and revenue increases. For instance, sectors like finance and healthcare might see higher percentages due to the critical nature of AI applications, while industries with less automation may experience more modest gains. Additionally, regional differences in technology infrastructure and workforce skills can further affect the outcomes of AI implementations. "Still, the maturity of AI adoption varies across countries and industries, influenced by factors such as technological infrastructure, investment levels, and regulatory environments. AI adoption in India and China is leading the way, with around 60%, while in the United States (25%), and the United Kingdom (26%). The global average is 35%; unfortunately, Ukraine is far behind this metric", - as one of the AI

experts claims. This is also confirmed by McKinsey studies of 2023 and 2024 and The Vention Report 2023. Another AI expert was more specific on the industries: “Manufacturing, information services, and healthcare companies report an AI adoption rate of about 12%. The construction and retail sectors are at the lower end — with only 4% of companies in these areas taking advantage of AI technology. By the way, McKinsey shows that marketing is also good in AI adoption.”

Ukraine is increasingly recognizing the potential of AI to drive economic growth and enhance business efficiency, though it currently lags leading countries in AI maturity. The nation has a strong technical talent pool, especially in software development and IT, which positions it well for AI adoption. However, challenges such as limited investment, and infrastructure issues, are dramatized by the war in Ukraine. Still, as reconfirmed by Statista 2024 labor shortage will drive the AI evolution further. Based on AI expert's feedback we can see that: “Ukraine is far behind this metric (the global average is 36%). If to take the general model of adoption I would say that we are at the awareness to exploration stage, though it is dependent on the company. Many companies are piloting some AI instruments. However, there is no clear study on that as the level of trial is too low and the business is too dispersed”.

So, experts’ interviews demonstrate that in Ukraine AI penetration is going through the piloting stage rather than holistic business model revision. Organizations are currently focused on testing small-scale AI projects to assess feasibility and effectiveness, rather than integrating AI comprehensively into their overall strategies, which limits the full impact of AI integration evaluation. This approach allows companies to experiment with specific applications and learn from the results without committing to large-scale changes. While this stage is critical for gaining insights and building a foundation for future adoption, it indicates that many businesses have yet to fully embrace AI as a transformative element in their operational frameworks. Moving forward, a shift toward more integrated AI strategies will be essential for maximizing its potential impact on efficiency and competitiveness in the market.

AI practitioner shared that in August 2024 there was an exploration in Ukraine from Gradus where they explored the use of artificial intelligence in marketing: “89% of Ukrainian marketers use artificial intelligence in their work, of which one-third (32%) are beginners, more than half (55%) are at an intermediate level (used for basic tasks), and another 12% are at a high and expert level. They use it in copyright (41%), design (33%), and information search (31%), 23% use AI to find creative ideas”.

Ukraine has the same challenges for AI integration as globally while a significant damaging factor is a war in Ukraine blocking financial investments as well as perspective understanding. Thus, the cost and the need to change in operational model is the hurdle as communicated in global reviews as well. AI expert claimed: “We are far from global trends though there are many pilots across the industries. Still high cost and need to adjust operational models, investment limitations behind war circumstances delay many projects.” So, the cost of integration, potential business model reloads, and personnel retraining needs are the limiting factors. AI integration can indeed be expensive due to several factors. The initial investment often involves significant costs related to purchasing software, hardware, and the necessary infrastructure, along with advanced computing resources and data storage solutions. Additionally, organizations must hire skilled professionals, such as data scientists and AI engineers, which can lead to higher recruitment expenses as demand for AI talent drives up salaries. Training existing staff to effectively use new AI systems also adds to the overall cost, requiring both time and financial resources. Moreover, effective AI models depend on high-quality data, necessitating investments in data collection, cleaning, and management processes. Once implemented, AI systems require ongoing maintenance, updates, and support, contributing to long-term operational costs. Finally, integrating AI often necessitates changes to existing business processes, leading to further expenses associated with change management initiatives. While these costs can be substantial, many organizations consider them worthwhile investments, anticipating significant long-term benefits such as improved efficiency, enhanced decision-making, and new revenue opportunities.

Also, while globally, there is already the tracking of the productivity boost of +22.6% (Vention, 2023) report) and revenue growth of +15.2% (Vention, 2023) in business, in Ukraine statistics is absent. As an AI expert mentioned: “In Ukraine, I have not seen a clear summary of the impact evaluation. Pilots can show early ROI impact, but UA companies do not usually share this “confidential” data. Global reports claim that the average ROI is 57%, which is quite positive to proceed.” So, the cost, difficulty scaling AI initiatives, as well as AI literacy shortage become clear barriers to pursuing an AI boost in Ukraine, confirming global summaries and reports.

Importantly, some experts consider that the fastest impact of AI is in productivity rather than profitability. AI technologies streamline operations by automating routine tasks, optimizing processes, and enabling more efficient resource allocation. This enhancement in productivity can lead to faster turnaround times and improved workflow, allowing organizations to deliver products and services more efficiently. While increased productivity often paves the way for higher profitability in the long run, the initial effects are typically observed in the form of enhanced operational efficiency. This distinction highlights the importance of focusing on

productivity gains as a foundational step toward achieving broader financial benefits, as companies leverage AI to improve performance and create a more agile business environment.

The analysis reveals that while Ukraine recognizes AI's potential, its adoption is still in its early stages, primarily focused on piloting projects. This is in line with global trends, where AI penetration varies across industries and regions. Key challenges, such as limited investment, infrastructure constraints, and the war's impact, hinder Ukraine's progress. As AI matures, Ukrainian organizations should prioritize strategic integration to fully realize the benefits of AI and drive significant improvements in productivity and profitability, as observed in global case studies.

The next chapter will delve deeper into practical case studies to illustrate the practical applications of AI in Ukrainian businesses. Practical examples examination can help in gaining insights into the challenges, opportunities, and potential benefits of AI implementation. These case studies will provide concrete evidence of AI's impact on business operations and financial performance, helping to inform future strategies and decision-making.

4.4. Cases evaluation (explored by author)

The next stage of the capstone research will involve a detailed examination of concrete AI integration case studies. One such case is that of IDS Ukraine, a prominent producer and distributor of bottled water and beverages. IDS Ukraine has initiated an exploration of AI technologies to enhance operational efficiency and address labor shortages within the industry. By analyzing this specific case, we can gain valuable insights into the practical applications of AI in the Ukrainian business landscape.

The war in Ukraine has had a devastating impact on the country's labor market. A significant portion of the workforce has been mobilized to serve in the military, leaving a critical shortage of skilled workers across various sectors. In the case of IDS Ukraine, it is 10% of the headcount. Additionally, millions of Ukrainians have been forced to flee the country, further exacerbating the labor gap. This mass exodus has deprived the economy of valuable human capital, particularly in fields like IT, engineering, logistics, manufacturing, and healthcare. According to the UN, as of November 2024, the number of migrants from Ukraine in the world reached 6.785 million people (it has increased by almost 400,000 people since the beginning of the year). The largest number of Ukrainian migrants are located in Germany (1.2 million), Poland (981 thousand), and the Czech Republic (380 thousand). (UN, 2024).

The war has also caused widespread economic disruption, leading to business closures and job losses. Infrastructure damage, particularly in transportation and logistics, has hindered the movement of goods and people, further impacting the labor market. As a result, many businesses struggle to find and retain qualified employees, hindering their growth and recovery efforts. The difficulty index of finding employees equals 50% for skilled workers and 35% for unskilled workers. Core drivers are mobilization (70%), shortage of personnel (54%), and migration (48%). (NBU, 2024)

Thus, resource limitations urged seeking alternative solutions such as AI. Integration of AI for IDS Ukraine was split into two streams based on business units: the core retail business of IDS Ukraine company and the HOD (home and office delivery) business (e-com and delivery of Aqua Service).

To effectively integrate AI into the business, IDS Ukraine initiated a comprehensive training program for employees on what AI is and how it works. This training covered the fundamentals of AI, machine learning, and data science. Employees were educated on the potential

applications of AI in various business functions, from supply chain optimization to customer service.

After the initial training, the company identified several key areas where AI could be implemented to improve efficiency and productivity. However, data confidentiality posed a major challenge, especially when considering smaller-scale AI integrations. To mitigate these risks, IDS Ukraine opted for collaboration with established AI providers like Microsoft, leveraging their robust data security measures and cloud platforms. Still, smaller-scale AI integrations were possible in case confidentiality and data protection were regulated. Firstly, IDS Ukraine started with **Power BI** as a business intelligence platform that uses AI to visualize data and uncover insights. This simplified and automatized data analysis, improved business decisions. Then, **Microsoft 365 Copilot** was the core AI-powered assistant to help with tasks like writing emails, making minutes, creating presentations, and analyzing data (from sales data to financial evaluation on PnL with recommendation summary based on gap analysis).

First pilot projects were launched in the following areas with specific tracking in the marketing function:

- **Marketing:** AI-driven marketing automation tools were used to personalize marketing campaigns and improve customer targeting. Creative communication, copywriting, SMM optimization practices, and presentation build-up were streamlined via AI solutions. This helped to increase productivity and avoid a headcount increase for 2025 (as an optimization of 10% of HR budget and up to 5% of the total budget). Productivity increased 10% and helped to avoid extra hiring.
- **Research and Development:** AI-powered data analysis tools were used to identify new product opportunities and optimize product development processes also saving around 15% of the budget as the first stage of the implementation. Productivity increased up to 10%.
- **New product development (R&D).** With AI engagement recipe planning, testing, and competition evaluation IDS Ukraine managed to gain up to 3% of cost optimization and 5% of productivity uplift.
- **Trade marketing.** First AI solutions in trade marketing like Power BI and face recognition tools to track merchandising quality helped to optimize up to 5% of the budget and bring 15% productivity gains.

Table 3. Case Study. AI Trial Stage 1. AI integration impact in practical case

Function	**Cost optimization**	**Productivity improvement**
Marketing	-5%	+10%
Research	-15%	+10%
NPD (New product development)	-3%	+5%
Trade marketing	-5%	+15%

Source: developed by author based on case study analysis

As a result, at the second stage of AI integration, the decision was made to apply Dynamics 365, AI-powered tools that improve sales, supply chain, customer service, IT, and HR, which will become the final stage of AI integration. Integration of Dynamics 365 can help in generic impact on profitability evaluation via Profit and Loss Statements comparison where AI impact is included and not. According to the Dynamics 365 deployment plan, this stage requires 18 months to continue with the second stage of AI integration evaluation.

Meanwhile, on top of the improvements mentioned above, the second business unit (HOD, Aqua Service) improved its customer service practices and CRM system with AI integration. This included implementing AI-powered chatbots to provide 24/7 customer support, answering frequently asked questions, and resolving simple issues. These chatbots were designed to provide quick and efficient responses, improving customer satisfaction, and reducing response times and headcount engagement.

Furthermore, AI-driven analytics tools were utilized to analyze customer data and identify trends and patterns. This enabled the company to personalize customer interactions, tailor marketing campaigns, and improve product recommendations.

By leveraging AI, Aqua Service was able to streamline its customer service operations, enhance customer satisfaction, and gain valuable insights into customer behavior. Overall, productivity increase is estimated at the level of 10% and cost improvement up to 3%. This business unit also plans to integrate Dynamics 365 from Microsoft, which enables a more rounded impact assessment on AI integration.

To summarize, according to the first stage of AI piloting, the IDS case assessment reconfirmed that it was too early to evaluate the total impact on PnL without the piloting phase that showed growth areas and opportunities. Therefore, in the first stage, it was possible to assess only cost impact and track the productivity increase effect. Meanwhile, AI impact at the level of the Profit and Loss Statements evaluation is possible in the second stage of Dynamics 365 from Microsoft integration for both business units of the company and requires 18 months of deployment and one year of practical testing.

AI INTEGRATION FRAMEWORK ON EFFICIENCY ASSESSMENT (developed by author)

Given the potential positive business impact of AI and the importance of a clear framework for accelerating its integration, this section aims to establish a framework for evaluating the efficiency of AI investments, presented in a table format

Table 4. AI integration framework on efficiency assessment

Step	**Description**	**Duration**	**Responsible**
1. Define Objectives	- Identify goals for AI implementation (e.g., productivity, cost reduction). - Align objectives with overall business strategy.	2-4 weeks	AI Team Lead
2. Cost Assessment	- **Initial Investment**: Calculate total upfront costs (software, hardware, infrastructure). - **Ongoing Costs**: Estimate recurring expenses (maintenance, personnel). - **Training Costs**: Consider costs for training staff on AI systems.	2-4 weeks	Finance Team, IT Department
3. Benefit Estimation	- **Revenue Increases**: Project potential revenue growth from AI initiatives. - **Cost Reductions**: Estimate savings from lower operating costs. - **Productivity Gains**: Assess improvements in productivity and service delivery.	2-4 weeks	Business Analysts, Finance Team, IT Department
4. Quantify Impact	- **P&L Impact Analysis**: Simulate financial impact using a P&L model. - **Key Performance Indicators (KPIs)**: Define KPIs for measuring success (revenue growth, cost savings).	2-4 weeks	Finance Team, Business Analysts, Project Manager
5. ROI Calculation	- **ROI Formula**: Calculate ROI using: ROI=Net Benefits/Total Investment*100 **Net Benefits**: Determine as total projected benefits minus total investment costs.	1-2 weeks	Finance Team, Business Analysts
6. Scenario Analysis	- **Minimum and Maximum Scenarios**: Create scenarios for varying productivity impacts. - **Risk Assessment**: Evaluate risks associated	2-4 weeks	Finance Team, Business Analysts, Risk Manager

	with AI adoption (technological, implementation).		
7. Implementation Plan	- **Roadmap Development**: Outline timelines, milestones, and responsibilities. - **Change Management**: Prepare for organizational changes through stakeholder engagement and training.	2-4 weeks	AI Team Lead Project Manager, IT Department, Finance Team
8. Monitoring and Evaluation	- **Continuous Monitoring**: Track KPIs and financial metrics post-implementation. - **Periodic Review**: Regularly evaluate progress against defined objectives.	Ongoing	AI Team Lead Project Manager, IT Department, Finance Team
9. Reporting and Communication	- **Stakeholder Reporting**: Share findings and progress with stakeholders. - **Document Learnings**: Capture lessons to inform future AI projects.	Ongoing	AI Team Lead Project Manager, Communication Team

Source: developed by author

To ensure there is no sabotage in the organization during the adoption of AI, it's crucial to engage stakeholders early in the process, fostering a sense of ownership and reducing resistance. Transparent communication about the goals, benefits, and changes associated with AI can alleviate concerns and misinformation. Providing comprehensive training programs helps employees understand AI technologies and their potential impact, mitigating fear and uncertainty. Implementing structured change management strategies addresses challenges while supporting employees through the transition. Additionally, fostering a positive culture of innovation encourages collaboration and empowers employees to share ideas. Actively listening to concerns about AI, particularly regarding job displacement, is essential to clarify that AI is meant to enhance roles rather than replace them. Incentivizing participation through recognition or bonuses can motivate employees to engage positively with AI initiatives. Establishing clear policies and ethical guidelines outlines acceptable behaviors and prevents sabotage. Regular monitoring and evaluation of the implementation process, along with leadership demonstrating commitment to AI initiatives, further reinforce a supportive environment for adoption. By taking these proactive measures, organizations can create a culture that embraces AI, reduces the likelihood of sabotage, and promotes collaboration and innovation.

CHAPTER 5. A ROADMAP OF INTEGRATING AI INTO BUSINESS OPERATIONS (RECOMMENDATIONS)

A roadmap of AI integration into business operations is essential because it provides a structured framework that guides organizations through the complexities of AI adoption. This strategic plan outlines clear phases and actions, helping to align AI initiatives with overall business goals while ensuring that resources are effectively allocated. By establishing specific timelines and milestones, a roadmap facilitates coordinated efforts across departments, fostering collaboration and stakeholder engagement. Additionally, it allows organizations to assess progress, identify potential challenges early, and make necessary adjustments, ultimately maximizing the value derived from AI investments. Without a roadmap, the integration of AI can become chaotic and fragmented, leading to missed opportunities and inefficiencies. Overall, a well-defined roadmap is crucial for ensuring that AI adoption is systematic, sustainable, and aligned with the organization's long-term vision.

Table 5. AI Integration Roadmap

Phase	**Actions**	**Responsible Functions/People**	**Timeline**	**KPIs**
1. Assessment and Planning	- Conduct a needs analysis to identify areas for AI value. - Define clear objectives aligned with business goals. - Evaluate current technology infrastructure and data readiness.	AI Team Lead Project Manager, IT Department, Finance Team	Month 1	- Number of identified use cases - Alignment score of objectives with business goals
2. Stakeholder Engagement	- Identify key stakeholders across departments. - Communicate the vision and benefits of AI adoption. - Gather input and address employee concerns.	AI Team Lead, Change Management Team	Month 1-2	- Stakeholder engagement score - Percentage of departments involved in discussions
3. Skill Development	- Assess current skill levels and identify gaps.	HR Department,	Month 2-3	- Number of employees trained

Phase	Actions	Responsible Functions/People	Timeline	KPIs
	- Develop training programs on AI technologies and tools. - Consider hiring or upskilling talent in data science and AI.	Change Management Team, AI Team Lead		- Improvement in skill assessment scores
4. Pilot Projects	- Select specific use cases for initial AI implementation (e.g., customer service, predictive maintenance). - Implement pilot projects to test AI solutions and gather performance data. - Measure outcomes and gather feedback for improvement.	AI Team Lead, Department Heads	Month 3-6	- Pilot project success rate - User satisfaction score from pilot participants
5. Evaluation and Refinement	- Analyze results from pilot projects against predefined KPIs. - Identify challenges and areas for improvement. - Refine AI models and strategies based on feedback.	Business Analysts, AI Team Lead, Project Manager, IT Department, Finance Team	Month 5-6	- Percentage improvement in KPIs from pilot - Number of refinements implemented
6. Full-Scale Implementation	- Roll out successful AI solutions across relevant departments. - Integrate AI systems with existing workflows and processes. - Ensure ongoing training and support for employees.	AI Team Lead Change Management Team IT Department	Month 6-12	- Adoption rate across departments - User satisfaction post-implementation

Phase	Actions	Responsible Functions/People	Timeline	KPIs
7. Monitoring and Optimization	- Establish a monitoring system to track AI performance and impact. - Continuously evaluate AI outcomes against business objectives. - Optimize AI solutions based on real-time data and feedback.	Business Analysts, AI Team Lead, Project Manager, IT Department, Finance Team	Month 8-12	- Performance improvement metrics - Reduction in operational costs attributed to AI
8. Long-Term Strategy	- Develop a long-term AI strategy that includes scaling, maintenance, and future use cases. - Foster a culture of innovation to explore new AI opportunities. - Stay updated on AI advancements and market trends.	Executive Leadership, Strategic team, AI Team Lead IT Department, Finance Team	Month 12 and beyond	- Number of new AI initiatives launched - Long-term ROI from AI investments

Source: developed by author.

To ensure successful AI adoption in an organization, a variety of motivation tools can be employed to encourage engagement and positive attitudes among employees. These tools can include clear communication about the benefits of AI, training and development opportunities to build AI skills, recognition and rewards for successful AI projects, and a culture of innovation and experimentation. By implementing these strategies, organizations can foster a positive and supportive environment for AI adoption, leading to increased employee engagement and successful outcomes.

Table 6. Motivation tools for AI integration and adoption

Motivation Tool	Description

Recognition and Rewards	- **Incentives**: Offer bonuses or rewards for contributions to AI initiatives. - **Recognition Programs**: Establish awards for innovative use of AI.
Career Development Opportunities	- **Training and Upskilling**: Provide access to AI-related training programs. - **Mentorship Programs**: Pair employees with AI mentors for guidance.
Engaging Leadership	- **Visible Commitment**: Leaders actively promote AI initiatives. - **Involvement in Projects**: Leaders participate in AI projects to inspire teams.
Open Communication Channels	- **Feedback Mechanisms**: Create platforms for employees to voice opinions and concerns. - **Regular Updates**: Inform employees about AI project progress.
Team Collaboration and Ownership	- **Cross-Functional Teams**: Form teams from different departments for AI projects. - **Empowerment**: Give teams ownership of specific AI initiatives.
Gamification	- **Incorporate Game Elements**: Use leaderboards, challenges, and point systems to make AI adoption engaging.
Pilot Programs	- **Small-Scale Initiatives**: Start pilot programs for low-risk experimentation with AI tools.
Cultural Alignment	- **Promote a Growth Mindset**: Foster a culture of continuous learning and innovation. - **Celebrate Successes**: Share success stories of AI adoption.
Provide Resources and Support	- **Access to Tools**: Ensure employees have the necessary tools for AI implementation. - **Dedicated Support Teams**: Create support teams to assist employees.

Source: developed by author.

To ensure successful AI adoption, organizations should implement a comprehensive roadmap along with a motivational strategy. This involves recognizing and rewarding contributions, providing training and mentorship, fostering a culture of innovation, and encouraging open communication. By empowering teams, leveraging gamification, and conducting pilot projects, organizations can create a positive environment that drives employee engagement and accelerates AI integration. Additionally, providing necessary resources and support, such as tools and dedicated teams, is crucial for overcoming challenges and achieving successful AI implementation.

CONCLUSION

To summarize, this Capstone project has thoroughly examined the profound impact of AI technologies on operational efficiency and profitability within organizations through global studies results aggregation, potential impact modeling via PnL, validation of global explorations vs. experts' vision, and the final stage - cases assessment.

By assessing various reports on global, industrial, and company levels, we have established that the integration of AI significantly enhances operational processes, leading to measurable improvements in productivity, reduced costs, and optimized workflows. Globally, AI adoption is accelerating, with companies at various stages of integration. Many are experimenting with AI to improve efficiency, decision-making, and customer experiences. However, challenges such as data quality, talent shortage, cost, integration complexity, and ethical concerns persist.

Our evaluation via PnL modeling of the financial effects of AI implementation has demonstrated substantial increases in profitability, highlighting the critical value of strategic investments in AI technologies. Still, the absence of holistic cases of AI integration demonstrating full-scale AI integration impact limits our ability to fully quantify the financial impact on businesses.

Ukraine is actively exploring AI, with many companies initiating pilot projects. However, the country is still in its early stages of AI adoption, hindered by challenges such as limited investment and infrastructure limitations imposed by the ongoing war. Despite these obstacles, Ukraine's strong technical talent pool positions it for future growth. To fully realize the potential of AI, organizations should prioritize education, foster innovation, collaborate with experts, measure ROI, and address ethical concerns.

The evaluation of case studies confirms the expert vision of the situation in AI integration in Ukraine: though far from global benchmarks Ukraine is still active in piloting AI projects. However, the case studies indicate that when AI is fully integrated, it can yield significant productivity increases and cost savings, comparable to global standards.

The author’s framework developed for AI efficiency assessment equips businesses with robust tools to measure their returns effectively, enabling them to make informed and strategic decisions about future AI initiatives.

Furthermore, the roadmap for integrating AI into business operations serves as a vital guide for organizations aiming to navigate the complexities of AI adoption. This structured approach not only facilitates successful implementation but also fosters a culture of innovation and continuous improvement, engaging stakeholders at all levels.

Ultimately, this capstone underscores that AI is not just a catalyst for operational efficiency; it is a transformative force that drives enhanced profitability and competitive advantage. As organizations strive to thrive in an increasingly digital and dynamic landscape, embracing AI technologies will be essential for achieving sustainable growth and long-term success. This project lays the groundwork for future research and practical applications, encouraging businesses to leverage AI as a key component of their strategic vision.

LIMITATIONS AND FURTHER RESEARCH AREAS

Artificial Intelligence (AI) has emerged as a transformative force, reshaping industries and redefining business models. Its potential to automate tasks, enhance decision-making, and personalize customer experiences is immense. However, the successful integration of AI into business operations requires careful planning, execution, and continuous evaluation.

This capstone project delved into the complexities of AI integration, exploring its benefits, challenges, and future implications. By examining practical case studies and conducting in-depth analysis, this research aimed to provide valuable insights into the best practices for leveraging AI to drive efficiency and profitability.

Additionally, assessing the full impact of AI integration is hindered by several limitations, including the limited availability of transparent case studies, confidentiality concerns among companies, and the lack of comprehensive, long-term data for rigorous analysis. Additionally, data quality issues, technical expertise requirements, ethical considerations, significant costs, and organizational resistance to change can hinder AI adoption.

To advance the field of AI impact in business exploration, future research should focus on several key areas. A comprehensive annual report, backed by verified statements, should adopt a global perspective to provide a holistic assessment of AI's impact on businesses. Unified tracking of practical case studies within a structured framework with ROI, and figures on business impact (productivity, efficiency, savings, and uplifts) can significantly enhance our understanding of how AI can contribute to productivity and efficiency. By analyzing these case studies, we can identify best practices, potential challenges, and opportunities for future innovation. Additionally, exploring the most successful models of AI integration can provide valuable insights and guidance for other companies. By analyzing case studies of companies that have

successfully implemented AI, we can identify best practices, common challenges, and opportunities for future innovation

Thus, while AI has made significant strides in recent years, its full potential remains untapped. Numerous opportunities exist for further exploration and innovation in AI integration. By addressing the limitations and pursuing the research areas outlined in this capstone, businesses can unlock new levels of efficiency, productivity, and customer satisfaction. This will ultimately lead to a more competitive and innovative business landscape.

APPENDIX A. SOME GRAPHICS FROM GLOBAL REPORTS

Deloitte (2024)

How are different industries approaching Generative AI?

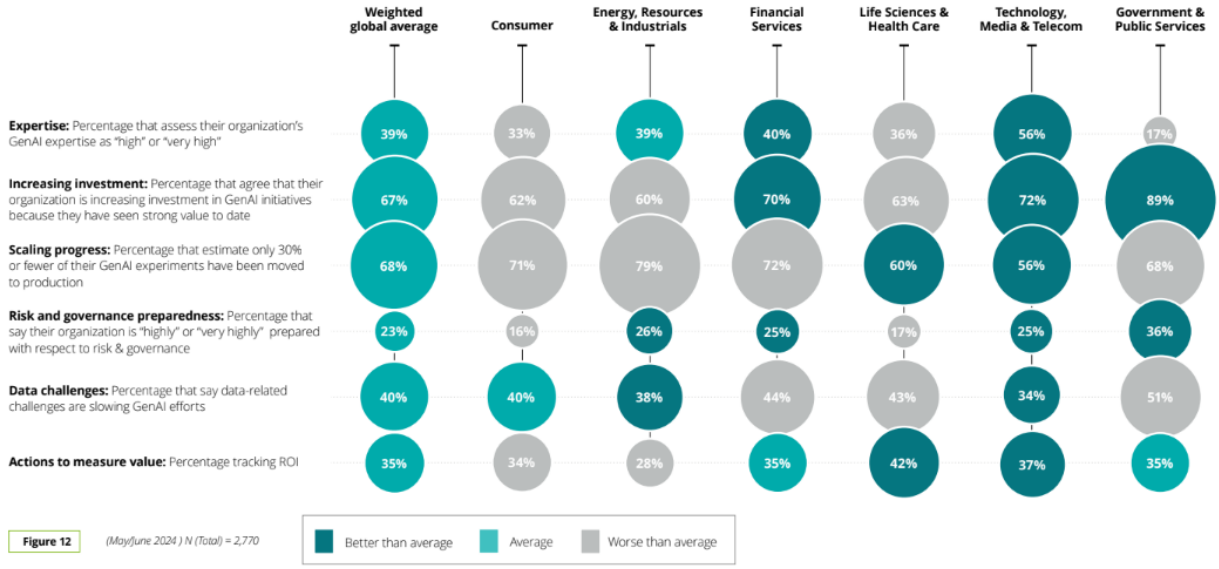


Figure 12 (May/June 2024) N (Total) = 2,770

Now: Key findings

Level of generative AI adoption

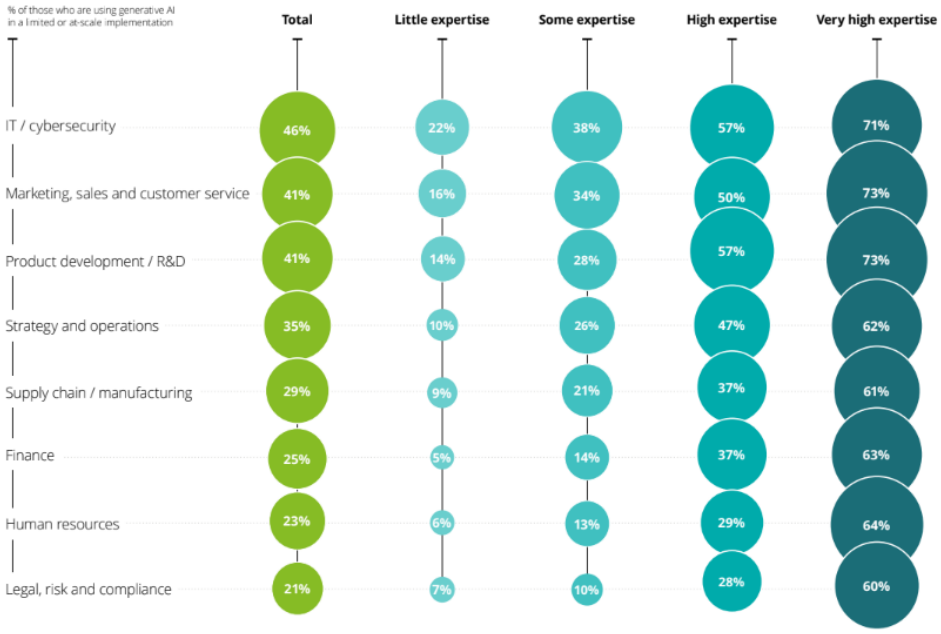


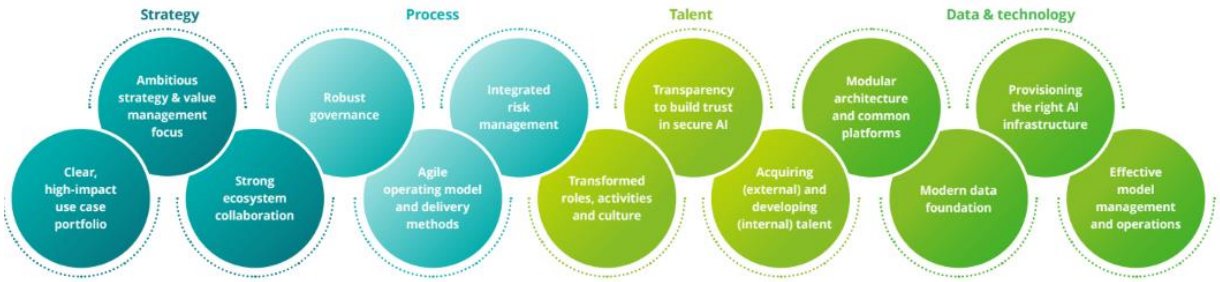
Figure 6

Q: What is your organization's current adoption level of generative AI across the following functions?

(Oct./Dec. 2023) N (Total) = 2,835; N (Very high) = 267; N (High) = 1,003; N (Some) = 1,273; N (Little) = 274

Essential elements for scaling Generative AI initiatives from pilot to production

Figure 5



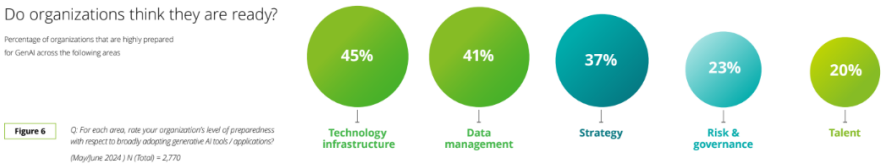


Figure 6 Q: For each area, rate your organization's level of preparedness with respect to broadly adopting generative AI tools / applications? (May/June 2024) N (Total) = 2,770

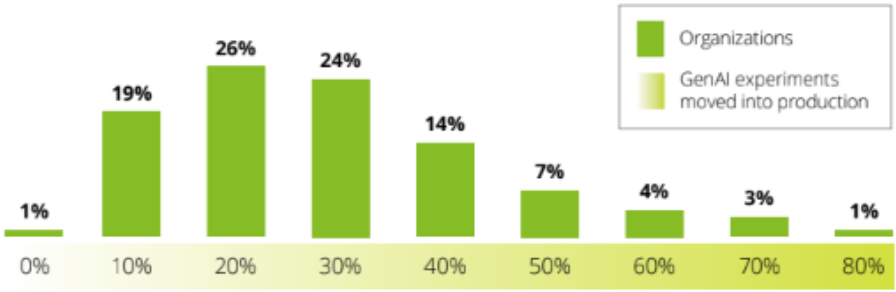


Figure 4 *Q: In your estimation, what percentage of your Generative AI experiments have been deployed to date into your organization (moved into production)?*

(May/June 2024) N (Total) = 2,770

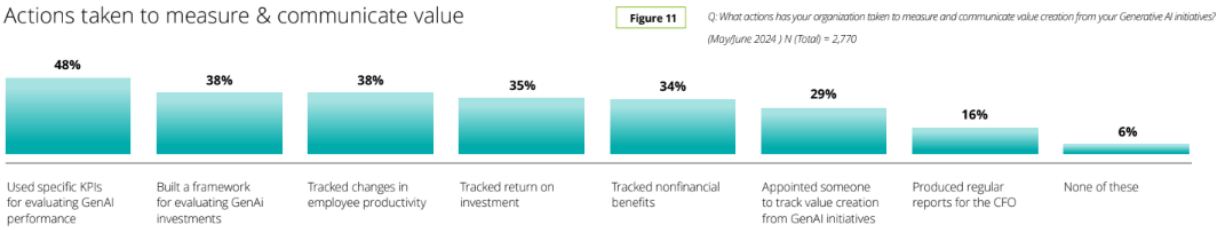


Figure 11 Q: What actions has your organization taken to measure and communicate value creation from your Generative AI initiatives? (May/June 2024) N (Total) = 2,770

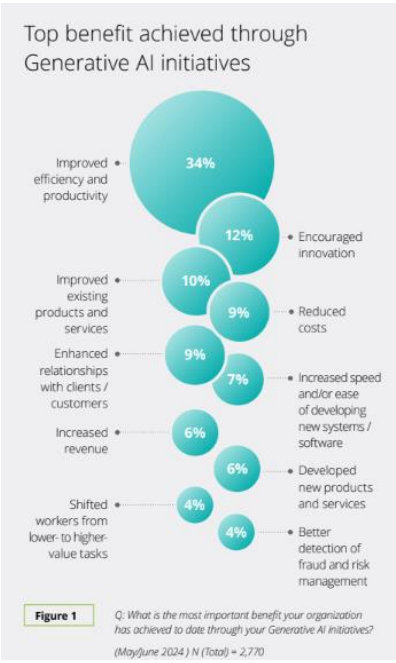
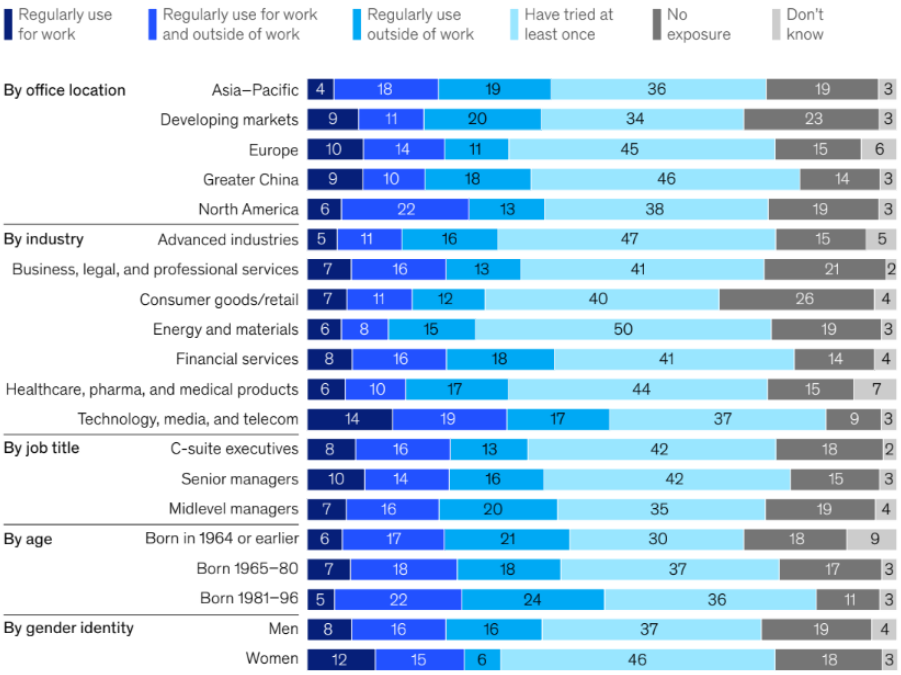


Figure 1 Q: What is the most important benefit your organization has achieved to date through your Generative AI initiatives? (May/June 2024) N (Total) = 2,770

McKinsey (2023)

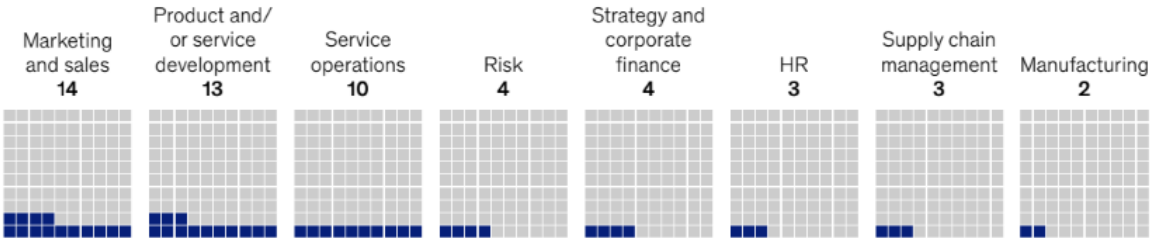
Respondents across regions, industries, and seniority levels say they are already using generative AI tools.

Reported exposure to generative AI tools, % of respondents



The most commonly reported uses of generative AI tools are in marketing and sales, product and service development, and service operations.

Share of respondents reporting that their organization is regularly using generative AI in given function, %[1]



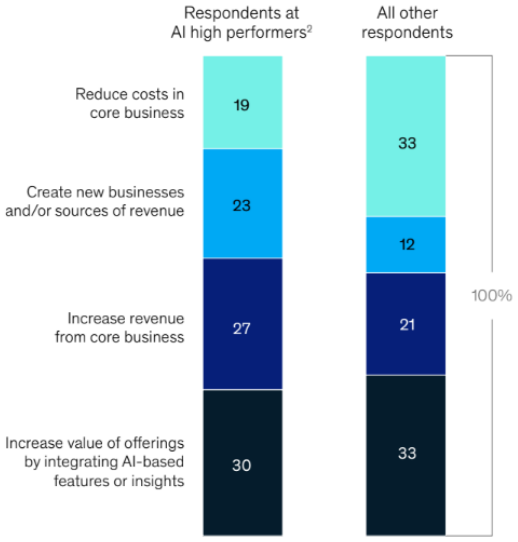
Most regularly reported generative AI use cases within function, % of respondents

Marketing and sales	Product and/or service development	Service operations
Crafting first drafts of text documents 9	Identifying trends in customer needs 7	Use of chatbots (eg, for customer service) 6
Personalized marketing 8	Drafting technical documents 5	Forecasting service trends or anomalies 5
Summarizing text documents 8	Creating new product designs 4	Creating first drafts of documents 5

[1]Questions were asked of respondents who said their organizations have adopted AI in at least 1 business function. The data shown were rebased to represent all respondents.
Source: McKinsey Global Survey on AI, 1,684 participants at all levels of the organization, April 11–21, 2023

Smaller shares of AI high performers see cost reductions as their top objective for generative AI efforts.

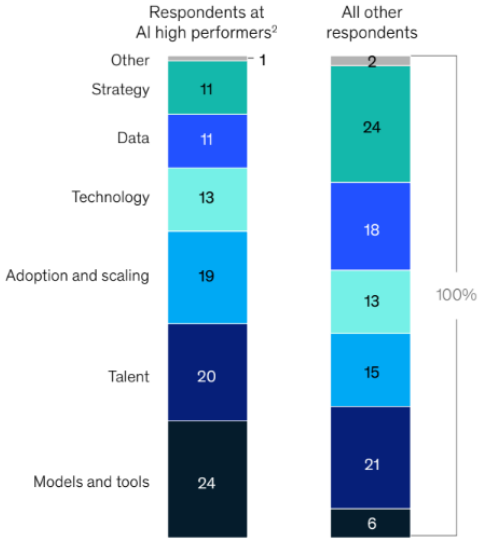
Top objective for organizations' planned generative AI activities,
% of respondents[1]



Note: Figures do not sum to 100%, because of rounding.
[1]Asked only of respondents whose organizations have adopted AI in at least 1 function.
[2]Respondents who said that at least 20 percent of their organizations' EBIT in 2022 was attributable to their use of AI. For respondents at AI high performers, n = 45; for all other respondents, n = 712.
Source: McKinsey Global Survey on AI, 1,684 participants at all levels of the organization, April 11–21, 2023

Models and tools pose the biggest AI-related challenge for high performers, while strategy is a common stumbling block for others.

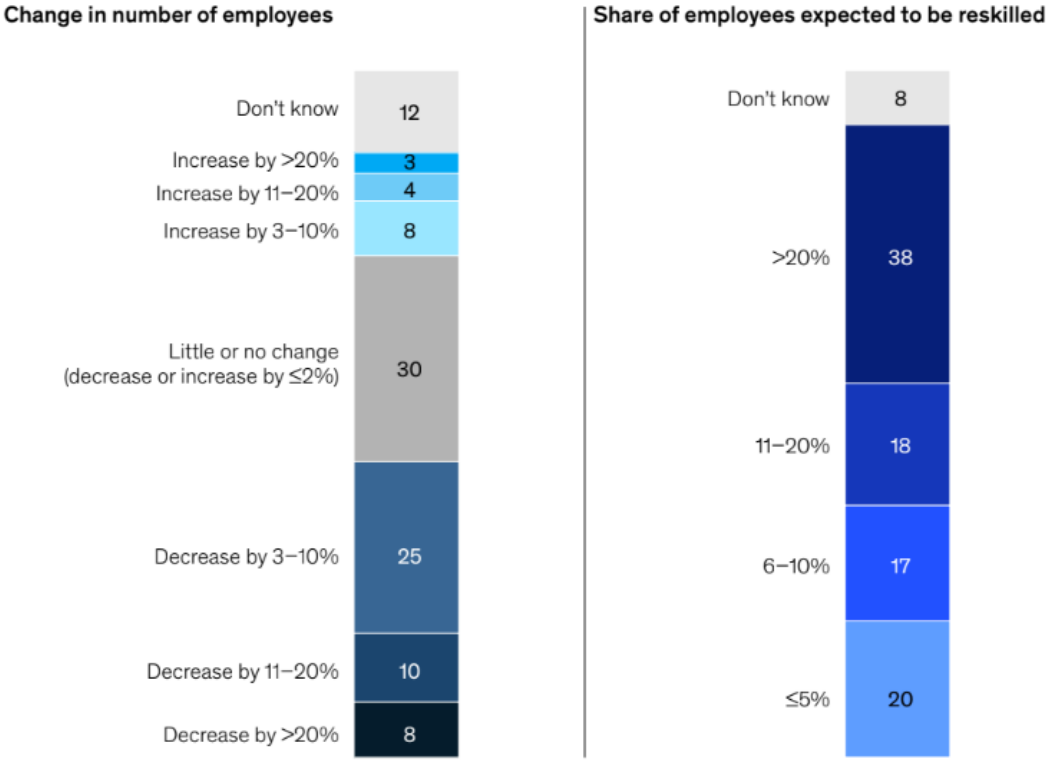
Element that poses the biggest challenge in capturing value from AI,
% of respondents[1]



Note: Figures do not sum to 100%, because of rounding.
[1]Asked only of respondents whose organizations have adopted AI in at least 1 function.
[2]Respondents who said that at least 20 percent of their organizations' EBIT in 2022 was attributable to their use of AI. For respondents at AI high performers, n = 49; for all other respondents, n = 792.
Source: McKinsey Global Survey on AI, 1,684 participants at all levels of the organization, April 11–21, 2023

Survey respondents expect AI to meaningfully change their organizations' workforces.

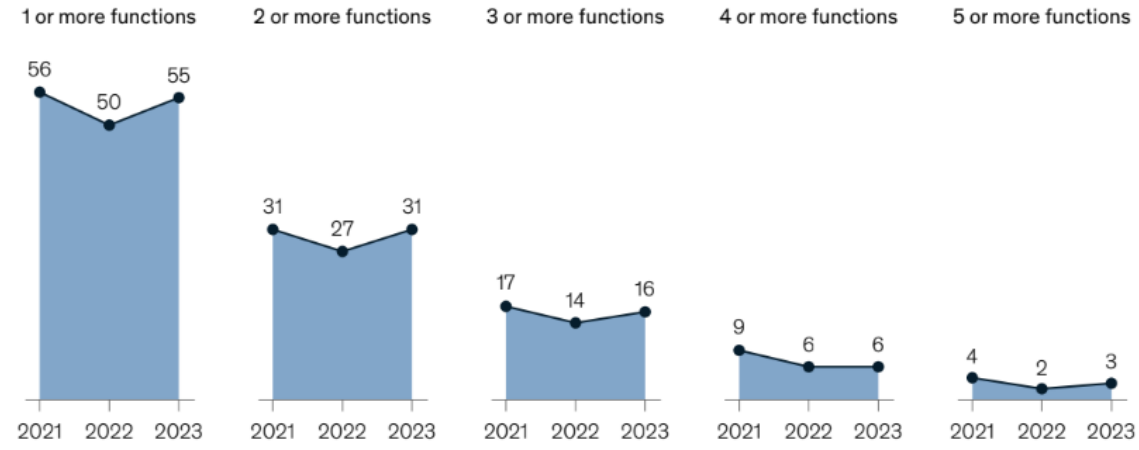
Expectations about the impact of AI adoption on organizations' workforces, next 3 years, % of respondents[1]



Note: Figures may not sum to 100%, because of rounding.
[1]Asked only of respondents whose organizations have adopted AI in at least 1 function; n = 913.
Source: McKinsey Global Survey on AI, 1,684 participants at all levels of the organization, April 11–21, 2023

Less than one-third of respondents say their organizations use AI in more than one function—a share largely unchanged since 2021.

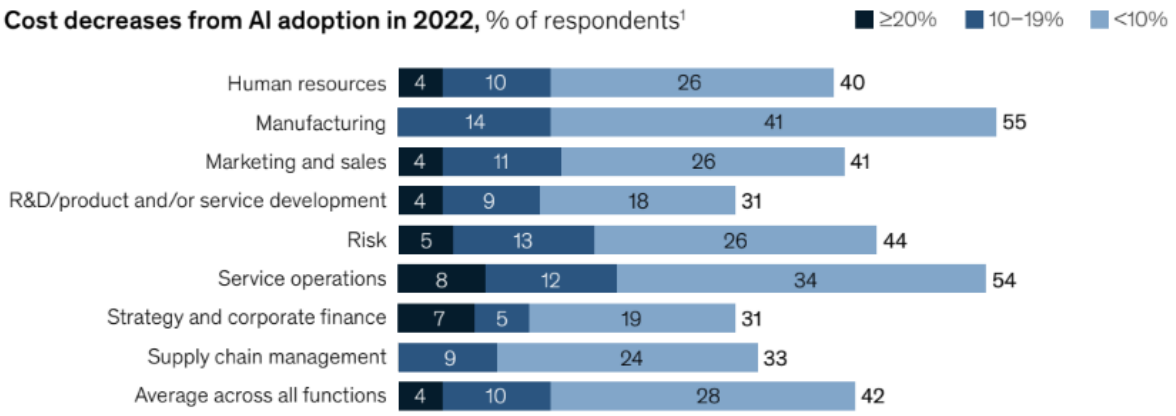
Number of business functions at respondents' organizations that have adopted AI, % of respondents[1]

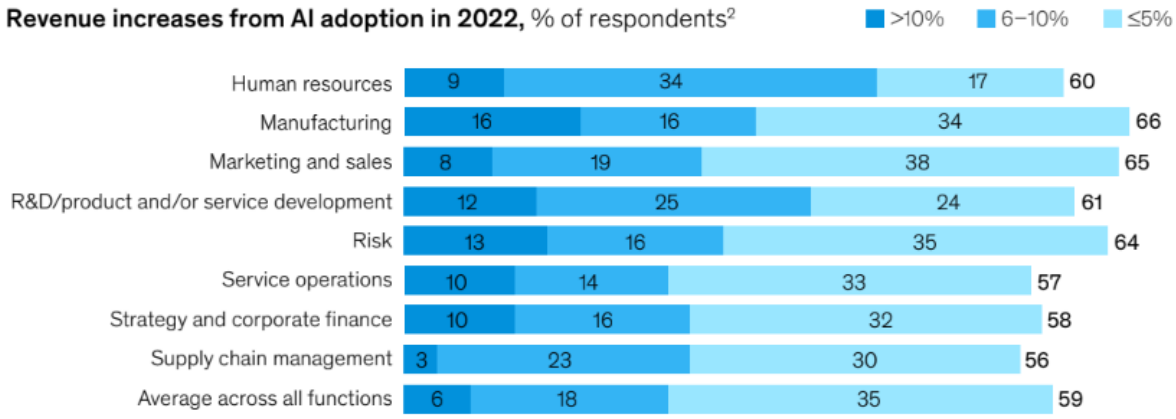


[1]In 2021, n = 1,843; in 2022, n = 1,492; in 2023, n = 1,684.
Source: McKinsey Global Survey on AI, 1,684 participants at all levels of the organization, April 11–21, 2023

McKinsey & Company

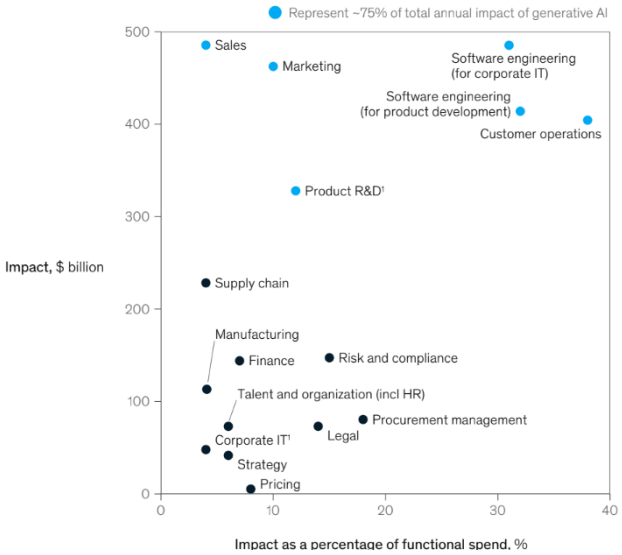
Organizations continue to see benefits from AI adoption in the functions using AI capabilities.





[1]Question was asked only of respondents who said their organizations have adopted AI in a given function. Respondents who said "cost increase," "no change," "not applicable," or "don't know" are not shown.
[2]Question was asked only of respondents who said their organizations have adopted AI in a given function. Respondents who said "revenue decrease," "no change," "not applicable," or "don't know" are not shown.
Source: McKinsey Global Survey on AI, 1,684 participants at all levels of the organization, April 11–21, 2023

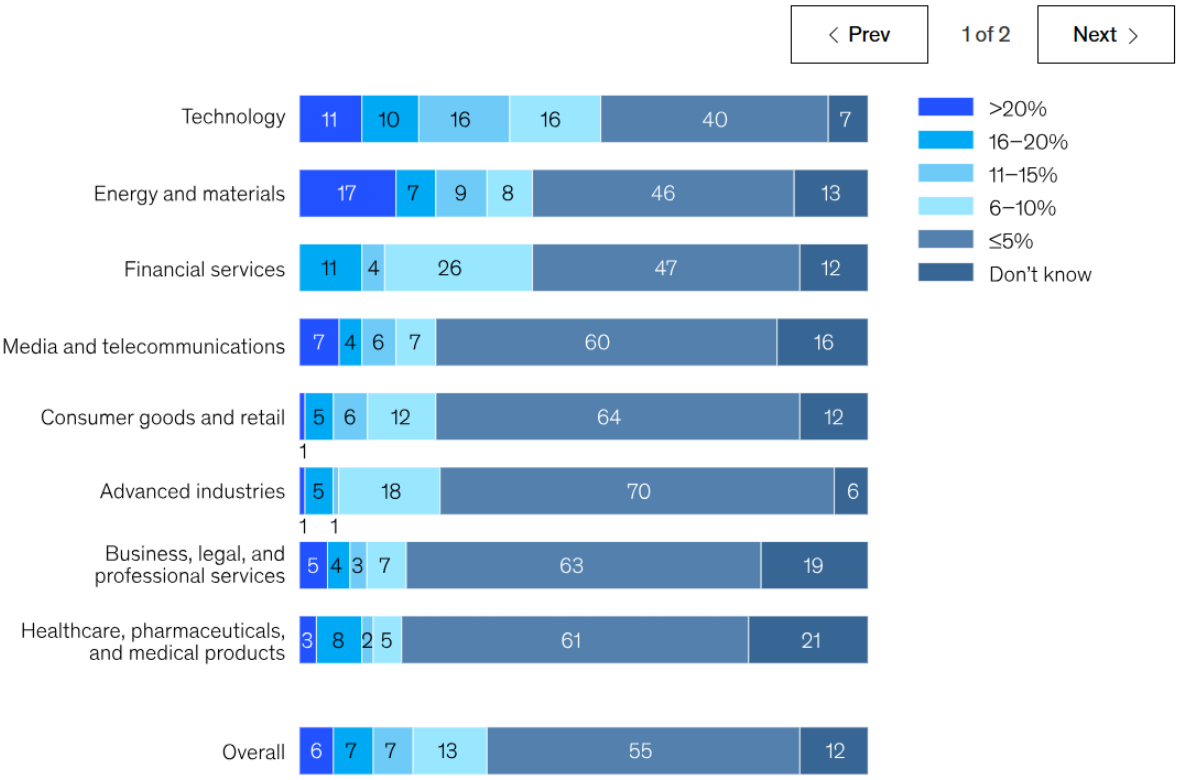
Using generative AI in just a few functions could drive most of the technology's impact across potential corporate use cases.



McKinsey (2024)

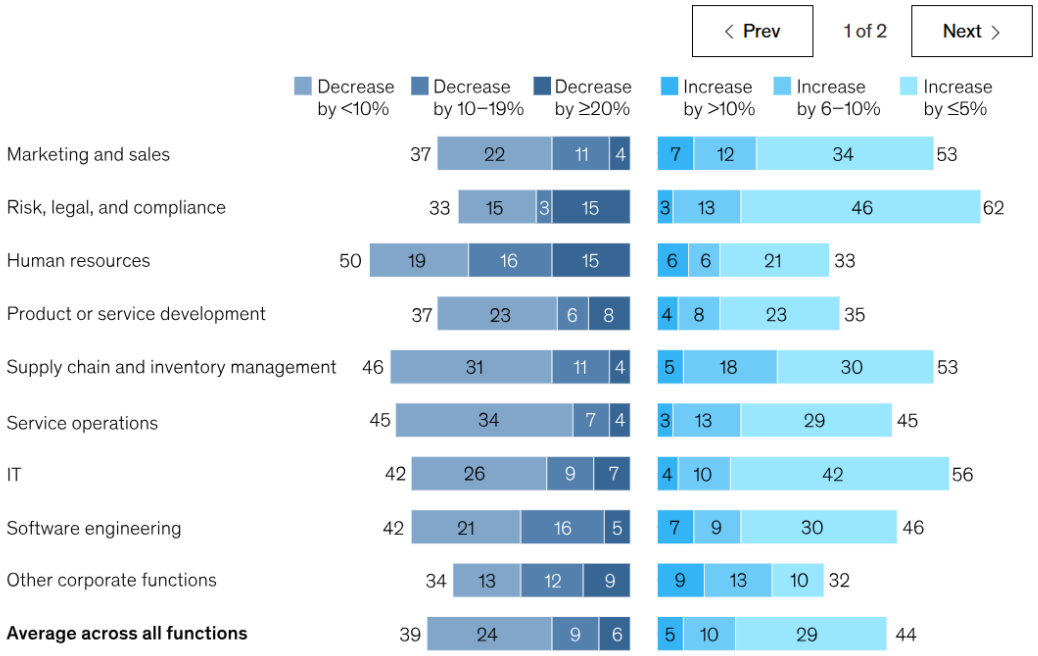
In most industries, organizations are about equally likely to invest more than 5 percent of their digital budgets in generative AI and analytical AI.

Share of organization's digital budget spent on generative AI,[1] % of respondents



Organizations most often see meaningful cost reductions from generative AI use in HR and revenue increases in supply chain management.

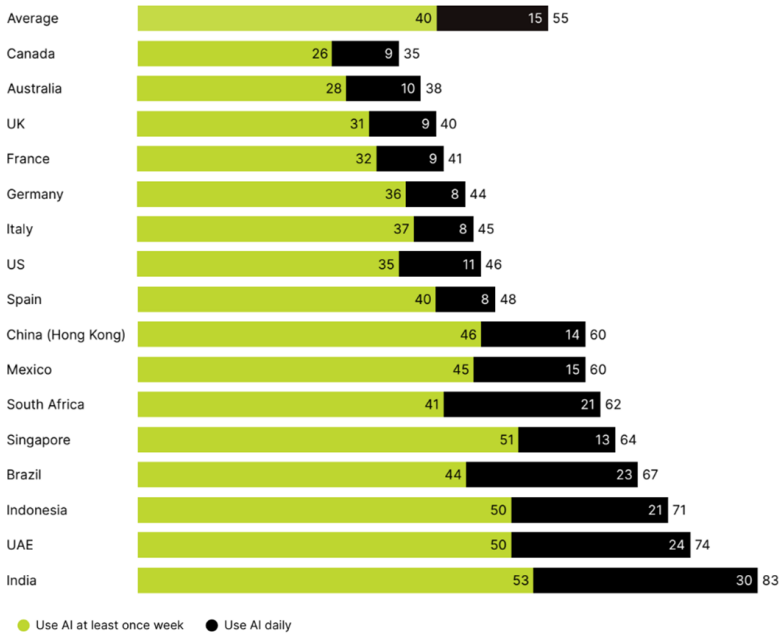
Cost decrease and revenue increase from generative AI adoption in 2023, by function,[1] % of respondents



Davos (2023)

Generative AI use skyrockets across the world

How often are you using generative AI in your current job?
% all employees, by country



Source: Oliver Wyman Forum Generative AI Survey, October–November 2023, 16 countries, N=16,033

Generative AI's versatility: Meeting a wide array of human needs

% of respondents who state underlying needs fulfilled by AI

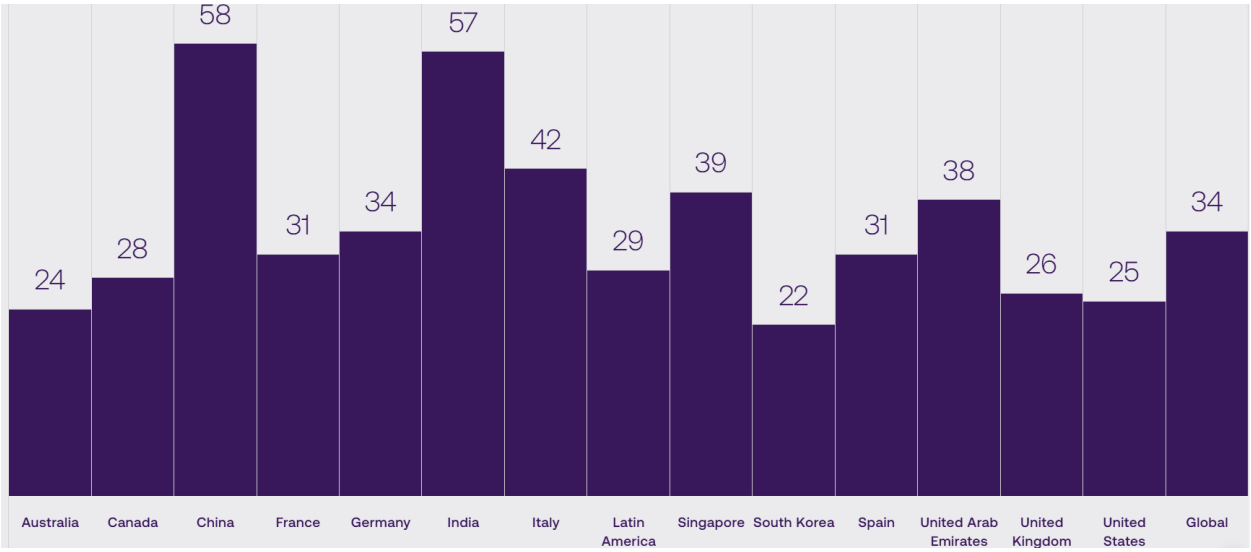
Internal need	Average across use-cases
Efficiency	22
Learning	18
Peace of mind	17
Novelty	17
Safety	17
Achievement (external)	16
Achievement (internal)	16
Fun	16
Feeling healthy	15
Connection	15
Autonomy and choice	15
Creation and self expression	15
Nurturance	15
Search for meaning	14
Beauty	13
Obligations	13
Positive difference	12

Frequently reported: Least Most

Source: Oliver Wyman Forum Generative AI Survey, October–November 2023, 16 countries, N=5,314-11,350

Vention (2024)

AI adoption rates around the world



APPENDIX B. INTERVIEWS' DETAILS

Interview Questions

1. What is the level of AI integration to the companies?
2. At what stage are the companies integrating AI?
3. What stage is Ukraine at?
4. What are the potential benefits of using AI for organizations?
5. How can AI be used to improve decision-making processes within organizations?
6. What are the biggest challenges companies face when implementing AI solutions?
7. What potential risks are associated with AI?
8. What are the costs involved in implementing and maintaining AI solutions?
9. How can companies effectively measure the ROI of AI initiatives?
10. How should companies foster the implementation of AI?
11. What specific focus on education and motivation should be applied?

The most prominent interviews impacting the Capstone evolution

1/ Interview of AI expert focused on Microsoft AI projects integration (AI expert)

Interviewer: What's the current state of AI integration in businesses?

AI Expert: Well, it's a fascinating time for AI. Many companies are starting to experiment with AI, from simple chatbots to complex predictive models. While some are still in the early stages of exploration, others are already seeing significant benefits from AI-powered solutions. Still, the maturity of AI adoption varies across countries and industries, influenced by factors such as technological infrastructure, investment levels, and regulatory environments. AI adoption in India and China is leading the way, with around 60% while in the United States (25%), and the United Kingdom (26%). The global average is 35%. Unfortunately, Ukraine is far behind this metric. The Vention Report 2023 gives more details on this.

Interviewer: Can you elaborate on the stages of AI adoption?

AI Expert: Sure, businesses typically go through several stages. They explore AI's potential, perhaps conducting workshops or research projects. Once they've gained a basic understanding, they might move on to building small-scale prototypes to test the waters. If these proofs of concept are successful, they'll often scale up their efforts, deploying AI solutions in specific areas of the business. Eventually, some companies aim to integrate AI deeply into their core operations, transforming their business models. In general, the level of AI integration is now in the early stage of piloting as the cost of implementation and operational model adjustment is huge.

Interviewer. What stage is Ukraine at?

AI Expert: As I've mentioned, Ukraine is far behind this metric (the global average is 35%). If to take the general model of adoption I would say that we are at the awareness to exploration

stage, though it is dependent on the company. Many companies are piloting some AI instruments. However, there is no clear study on that as the level of trial is too low and the business is too dispersed.

Interviewer: What are the main benefits businesses can expect from AI?

AI Expert: AI offers a wide range of benefits. For instance, it can revolutionize decision-making by analyzing vast amounts of data and uncovering valuable insights. By automating routine tasks, AI can boost efficiency and reduce costs. It can also enhance customer experiences through personalized recommendations and efficient customer service. Additionally, AI can fuel innovation by enabling the development of new products and services. And let's not forget, AI can help mitigate risks by identifying potential threats and vulnerabilities.

Interviewer: How can AI specifically improve decision-making?

AI Expert: AI can significantly enhance decision-making in several ways. It can provide data-driven insights by analyzing large datasets and identifying patterns. By automating routine tasks, AI frees up human resources to focus on strategic thinking and innovation. It can also improve predictive analytics, enabling businesses to forecast future trends and make informed decisions. Furthermore, AI-powered systems can process information quickly and provide timely recommendations, enabling real-time decision-making.

Interviewer: What are the biggest challenges businesses face when implementing AI?

AI Expert: While AI offers immense potential, there are several challenges. One of the biggest hurdles is obtaining high-quality, labeled data, which is crucial for training AI models. Another challenge is finding and retaining skilled AI talent. Additionally, implementing AI can be costly, both in terms of technology and personnel. Finally, overcoming organizational resistance to change can be a significant challenge. Some even need extra motivation to learn and adapt to AI. In Ukraine the greatest limit is the war and financial limitations behind that.

Interviewer: What are the potential risks of AI?

AI Expert: Despite its benefits, AI also poses certain risks. One concern is job displacement, as automation can lead to job losses. Security risks are also a concern, as AI systems can be vulnerable to cyberattacks and breaches. Finally, the lack of transparency in AI models can make it difficult to understand and trust their decisions.

Interviewer: How much does it cost to implement and maintain AI?

AI Expert: The cost of implementing and maintaining AI can vary widely depending on factors such as the complexity of the AI solution, the amount of data required, and the level of expertise needed. Data preparation and cleaning can be a significant upfront cost. Developing and training AI models also requires significant resources, including computing power and skilled personnel. Additionally, ongoing maintenance and updates are essential to ensure the effectiveness and security of AI systems. All should be evaluated based on the brief. For example, Microsoft 365 Copilot AI Tool Will Cost $30 Per Month. Still, you need to know the headcount number to cover the subscription and educate the personnel.

Interviewer: How can businesses measure the return on their AI investments?

AI Expert: To measure the ROI of AI initiatives, businesses can track various metrics. For example, they can quantify cost savings resulting from automation and efficiency improvements. They can also assess the impact of AI on revenue growth by measuring increased sales and

revenue. Additionally, they can evaluate the impact of AI on customer satisfaction and employee productivity. Finally, they can calculate the potential savings from reduced risk due to AI-powered risk mitigation strategies. Still, it is quite challenging to evaluate the pure impact of AI implementation especially in Ukraine as implementation is on the too early stage in integration.

Interviewer: What advice would you give to businesses looking to adopt AI?

AI Expert: To successfully implement AI, businesses should start by fostering collaboration between IT, business, and data science teams. Investing in AI education and training is also crucial to develop the necessary skills within the organization. Starting with small-scale pilot projects can help gain experience and build momentum. Establishing clear ethical guidelines for AI development and use is essential to ensure responsible AI practices. Finally, a robust data strategy is crucial to ensure data quality and accessibility.

Interviewer: How can businesses motivate their employees to embrace AI?

AI Expert: To encourage AI adoption, businesses should promote AI literacy by providing basic AI education to all employees. Investing in skill development programs can equip employees with the necessary AI skills. Fostering a culture of continuous learning and experimentation can drive innovation. Recognizing and rewarding employees for successful AI initiatives can also motivate them. Finally, emphasizing ethical considerations can ensure that AI is developed and used responsibly.

2/ Interview with CEO of IT start-up company, AI solutions developer (AI expert)

Interviewer: What's the current state of AI integration in businesses?

AI Expert: Absolutely! AI is revolutionizing industries. The level of integration varies, but the trend is clear: more and more businesses are recognizing the potential of AI. Generally, market conditions, regulatory environments, countries' development, and the maturity of AI adoption by industries influence a lot.

To be more specific. Manufacturing, information services, and healthcare companies report an AI adoption rate of about 12%. The construction and retail sectors are at the lower end — with only 4% of companies in these areas taking advantage of AI technology. I can share with you the latest reports on AI integration for businesses to check the figures. By the way, McKinsey shows that marketing is also good in AI adoption.

By the way, though Ukraine is lagging in AI (the market is estimated at US$316.30m in 2024), there are some interesting cases in agriculture or IT for example.

Interviewer: At what stage are the companies integrating AI?

AI Expert: Most are still in the early stages, testing the waters with pilot projects. However, a growing number are scaling up their AI initiatives and integrating AI into their core operations. Still, the process is in the early stage of evolution through growth quickly.

Interviewer. What stage is Ukraine at?

AI Expert: We are far from global trends though there are many pilots across the industries. Still high cost and need to adjust operational models, investment limitations behind war circumstances delay many projects.

Interviewer: What are the potential benefits of using AI for organizations?

AI Expert: AI offers a ton of benefits. It can supercharge decision-making by crunching data and uncovering valuable insights. By automating tasks, AI can boost efficiency and save costs. It can also enhance customer experiences through personalized recommendations and efficient support. And let's not forget, AI can spark innovation, leading to new products and services. For example, you even can optime your headcount with proper AI integration.

Interviewer: How can AI be used to improve decision-making processes within organizations?

AI Expert: AI can make decisions smarter by analyzing vast amounts of data and identifying patterns. It can automate routine tasks, freeing up personnel to focus on strategic thinking. AI can also predict future trends, enabling businesses to make informed decisions. And it can process information quickly, providing real-time insights.

Interviewer: What are the biggest challenges companies face when implementing AI solutions?

AI Expert: There are a few challenges. The most common is keeping AI talent competitive and managing the cost of implementation and maintenance.

Interviewer: What potential risks are associated with AI?

AI Expert: Security is a real concern, as AI systems can be vulnerable to attacks. And the complexity of AI models can sometimes make them difficult to understand and trust. So keeping data privacy is the core one.

Interviewer: What are the costs involved in implementing and maintaining AI solutions?

AI Expert: The cost varies, but it can be significant. Simple AI models can start around $5,000, while more complex ones with deep learning are from $50,000 to over $500,000. In detail, custom or Off-the-Shelf can be time-consuming and expensive: $5000-$100,000. Prototype Development starts from $15000 and requires resources and expertise. Software Cost is $10,000-$20,000. Ongoing maintenance and updates are essential, which costs upwards of $20,000/year.

Interviewer: How can companies effectively measure the ROI of AI initiatives?

AI Expert: They can measure cost savings, increased revenue, improved customer satisfaction, higher employee productivity, and reduced risk. Depends on the objective mainly. Still, in Ukraine, I have not seen a clear summary of the impact evaluation. Pilots can show early ROI impact but UA companies do not usually share this “confidential” data. Global reports claim that the average ROI is 57%, which is quite positive to proceed.

Interviewer: How should companies foster the implementation of AI?

AI Expert: A concrete action plan is needed, pioneering projects and ambassadors, and definitely, a motivational program for others to adapt AI. This learning curve may be very long.

Interviewer: How can businesses motivate their teams to embrace AI?

AI Expert: Educate, share the concrete results and cases, again educate, and motivate. HR team’s support is of high need in here.

3/ Interview with IT director of bottled water company (IT expert)

Interview with the IT Director of a Bottled Water Brand

Interviewer: What's the current state of AI integration in the bottled water industry?

IT Director: Well, it's still early days, but we're seeing a growing interest. Many companies are starting to explore AI's potential, especially in areas like supply chain optimization and predictive maintenance.

Interviewer: Where is your company in this journey?

IT Director: We're currently in the pilot phase. We are in the exploration stage still trying some pilots and testing the potential, evaluating pros and cons. It's a cautious approach, but we're optimistic about the long-term benefits.

Interviewer. What stage is Ukraine at?

IT Director: Far behind. We are one of the limited numbers of Companies piloting some AI solutions in wartime. Though I heard that in military defense and security, they also try some new things these days.

Interviewer: What are the potential benefits of AI for a bottled water company like yours?

IT Director: AI offers a lot of promise. For example, it can help us optimize our headcounts and make work more productive, optimize supply chain by predicting demand fluctuations and minimizing waste. It can also improve quality control by identifying potential issues early on. Additionally, AI-powered customer service chatbots can enhance customer satisfaction and loyalty. Especially in e-com part of the business.

Interviewer: How can AI improve decision-making in the water industry?

IT Director: AI can provide valuable insights by analyzing large datasets, such as historical sales data and weather patterns. This we already integrate with BI technology. This can help us make data-driven decisions about production planning, inventory management, and marketing strategies. Also, AI can automate routine tasks, freeing up our team to focus on more strategic initiatives.

Interviewer: What are the biggest challenges you've encountered in implementing AI?

IT Director: One of the biggest challenges is data quality. We need clean and accurate data to train our AI models. Another challenge is finding and retaining skilled AI talent. There's always the risk of AI bias, which can lead to unfair or inaccurate decisions. And finally, of course, the cost of integration. Still, labor shortage will make us do so especially dramatized by the war in Ukraine.

Interviewer: Are there any specific risks associated with AI in the water industry?

AI Expert: AI-powered systems could be vulnerable to cyberattacks, which could compromise our operations. Therefore, we plan to apply more secure options from Microsoft. Other risks can be mitigated we believe.

Interviewer: What are the costs involved in implementing and maintaining AI?

IT Director: The costs can vary widely. We are evaluating the cost of Copilot integration, Dynamics, and BI into the company. Imagine the cost of integration with 300 people of office personnel. Therefore we still assess the modeling.

Interviewer: How do you measure the success of your AI initiatives?

IT Director: We track key performance indicators like cost savings, increased efficiency, and improved customer satisfaction. We also monitor the accuracy of our AI models and the impact of AI-driven decisions on our bottom line.

Interviewer: How are you fostering a culture of AI within your organization?

IT Director: We're investing in AI education and training for our employees. We had several educational sessions for the whole organization and for some top managers with different levels of immersion. We're also encouraging experimentation and innovation, and we're celebrating successes to motivate our team. Still, we establish clear data protection guidelines for AI development and use to ensure data privacy protection and accountability.

Interviewer: What specific focus on education and motivation is needed to drive AI adoption in your company?

IT Director: We're focusing on practical training, hands-on experience, and clear communication. Specifically, we actively share AI integration results and impact.

4/ Interview with the E-commerce Business Leader of a Bottled Water Brand (AI practitioner)

Interviewer: How are integrating AI into your e-commerce operations?

E-commerce Business Leader: We're really excited about AI's potential to transform our business. We've implemented AI-powered chatbots to handle customer inquiries and complains, which has significantly improved response times and customer satisfaction. We're also using AI-driven analytics to optimize our product recommendations and personalize the shopping experience for each customer.

Interviewer: At what stage are you now of this AI integration?

E-commerce Business Leader: We're exploring AI's potential in the pilot implementation stage still though with faster go-to-market vs. core business of bottled water.

Interviewer. What stage is Ukraine at?

E-commerce Business Leader: I do not know the whole statistics, but I have read Gradus research on that in marketing. 89% of Ukrainian marketers use artificial intelligence in their work, of which one-third (32%) are beginners, more than half (55%) are at an intermediate level (used for basic tasks), and another 12% are at a high and expert level. They use it in copyright (41%), design (33%), and information search (31%), 23% use AI to find creative ideas. Let me share the link to the report with you.

Interviewer: What are the key benefits you've experienced from AI implementation?

E-commerce Business Leader: AI has brought several benefits. Our AI-powered chatbots have significantly reduced response times and improved customer satisfaction. By analyzing customer behavior, we've been able to tailor our product recommendations and marketing campaigns, leading to increased sales and customer loyalty. Now we are exploring new opportunities for logistics and supply chain.

Interviewer: How has AI improved decision-making within your organization?

E-commerce Business Leader: AI provides valuable insights that inform our decision-making. We implement Power BI for business analytics, YouChan for customer feedback tracking, chat-bots.This enables us to make more informed decisions about product assortment, pricing, and marketing strategies.

Interviewer: What challenges have you encountered in your AI journey?

E-commerce Business Leader: We urge AI solutions in specific areas, such as customer service and supply chain optimization. With labor shortage, we highly need to assess their effectiveness and potential benefits. Otherwise, operational cost increase will lead to selling price increase.

Interviewer: Are there any specific risks associated with AI in e-commerce?

E-commerce Business Leader: A major concern is the potential for AI to perpetuate biases. For example, if our AI algorithms are trained on biased data, they may make discriminatory recommendations. And definitely, there's always the risk of cyberattacks, which could compromise our customers' data and our business operations.

Interviewer: What are the costs involved in implementing and maintaining AI?

E-commerce Business Leader: The costs can vary widely, but they typically include investments in AI infrastructure, AI tools, ongoing costs for data maintenance, model retraining, and technical support.

Interviewer: How do you measure the success of your AI initiatives?

E-commerce Business Leader: We track key performance indicators like customer satisfaction, sales revenue, and operational efficiency. We also monitor the accuracy of our AI models and the impact of AI-driven decisions on our bottom line.

Interviewer: How are you fostering a culture of AI within your organization?

E-commerce Business Leader: Our KPI scorecard is very motivational in finding algorithms contributing to efficiency and profitability. In our case, AI products are profound in that.

Interviewer: What specific focus on education and motivation is needed to drive AI adoption in your company?

E-commerce Business Leader: We prioritize practical training and hands-on experience. We're inspiring our employees to embrace AI and drive innovation through sharing culture and proper bonuses for efficiency.

TABLES AND CHARTS LIST

REFERENCES

1. Brynjolfsson, Erik, and Andrew McAfee. (2014) The Second Machine Age: Work, Progress, and Prosperity in a Time of Extraordinary Technological Change. W.W. Norton & Company,
2. Russell, Stuart J., and Peter Norvig. (2021) Artificial Intelligence: A Modern Approach. Prentice Hall.
3. Davenport, Thomas H., and Jeanne G. Harris. (2007) Competing on Analytics: The New Science of Winning. Harvard Business Press.
4. West, Darrell M. (2018) The Future of Work: How AI Is Transforming Our Jobs and Economy. Brookings Institution Press.
5. Bonfiglio, Oliver. (2018) AI for Business: 10 Practical Applications for Leaders. Wiley.
6. Dwivedi, Y. K., Kumar, S., & Mishra, S. (2021). Artificial Intelligence (AI): Multidisciplinary Perspectives on Emerging Challenges. International Journal of Advanced Research in Computer Science and Management Studies
7. Martin Musiol. (2024) Generative AI: Navigating the Course to the Artificial General Intelligence Future 1st Edition.
8. Aileen Ormiston (2015). Understanding Financial Statements, Global Edition Paperback.
9. Hemachandran. (2023) Artificial Intelligence For Business An Implementation Guide Containing Practical and Industry Specific Case Studies, Hemachandran K https://ru.scribd.com/document/796728372/artificial-intelligence-for-business-an-implementation-guide-containing-practical-and-industry-specific-case-studies-1032415088-9781032415086-compress
10. Goldman Sachs. (2023). The Economic Impacts of AI.
11. Goldman Sachs (2024) “Global Investment Research”
12. Boston Consulting Group's (2023). “Report on AI Adoption”
13. McKinsey (2023). “Global Survey The state of AI in 2023: Generative AI’s breakout year”;
14. McKinsey (2023) “The economic potential of generative AI: The next productivity frontier”
15. McKinsey Global Institute. (2023). AI, automation, and the future of work: Ten things to solve for. https://www.mckinsey.com/featured-insights/future-of-work/ai-automation-and-the-future-of-work-ten-things-to-solve-for
16. McKinsey (2024). The state of AI in early 2024: Gen AI adoption spikes and starts to generate value https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai
17. Deloitte (2024). “State of Generative AI in the Enterprise. Q3-24 report”;
18. Deloitte (2024). “Deloitte AI Institute Implications of Generative AI for Businesses”, “2023 Generative AI and the future of Work”

19. Capgemini (2023) “World AI Report”;
20. Capgemini (2024) “Techno Vision | Prompt the Future”
21. CB Insights (2024) “CB Insights. The Enterprise AI Roadmap: How the AI development platform landscape has transformed, changing how buyers assess ROI, use cases, and more”
22. Accenture (2023). “New era of generative AI for everyone”
23. MIT Technology (2023). “Review Insights”
24. Davos Report (2024). “How Generative AI is Transforming business and society” (Oliver Wyman Forum)
25. PwC. (2023). AI Jobs Barometer. https://www.pwc.com/gx/en/issues/artificial-intelligence/ai-jobs-barometer.html
26. Vention (2024). AI adoption statistics by industries and countries: snapshot. https://ventionteams.com/solutions/ai/adoption-statistics
27. PWC (2018). Sizing the prize. What’s the real value of AI for your business and how can you capitalize? https://www.pwc.com/gx/en/issues/analytics/assets/pwc-ai-analysis-sizing-the-prize-report.pdf
28. McKinsey (2018). Notes from the AI frontier: AI adoption advances, but foundational barriers remain. https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Artificial%20Intelligence/AI%20adoption%20advances%20but%20foundational%20barriers%20remain/Notes-from-the-AI-frontier-AI-adoption-advances-but-foundational-barriers-remain.ashx
29. Bloomberg (2023). Generative AI boosts worker productivity 14%, new study finds. https://www.bloomberg.com/news/articles/2023-04-24/generative-ai-boosts-worker-productivity-14-new-study-finds
30. CNBC. (2023). Stanford and MIT study: AI boosted worker productivity by 14%. https://www.cnbc.com/2023/04/25/stanford-and-mit-study-ai-boosted-worker-productivity-by-14percent.html
31. The Talent Games. (2024). Global talent shortage. https://thetalentgames.com/global-talent-shortage-2024/
32. The Boston Consulting Group (2014), The labor shortage, https://www.iberglobal.com/files/The_Global_Workforce_Crisis_bcg.pdf
33. International Labour Organization (2024) Imbalances between supply and demand Recent causes of labour shortages in advanced economies, https://www.ilo.org/publications/imbalances-between-supply-and-demand-recent-causes-labour-shortages

34. Moldstud (2024). The Power of Predictive Maintenance AI in Preventing Equipment Failures, 2024 https://moldstud.com/articles/p-the-power-of-predictive-maintenance-ai-in-preventing-equipment-failures
35. LinkedIn (2024). Revolutionizing Retail: How Walmart's AI-Powered Strategy is Changing the Game https://www.linkedin.com/pulse/revolutionizing-retail-how-walmarts-ai-powered-strategy-yusuf-sheikha-wm2jf/
36. DHL (2023). AI in Logistics and Last-Mile Delivery, https://www.dhl.com/discover/en-global/logistics-advice/logistics-insights/ai-in-logistics-and-last-mile-delivery
37. McKinsey (2023). AI could increase corporate profits by $4.4 trillion a year, according to new research, https://www.mckinsey.com/mgi/overview/in-the-news/ai-could-increase-corporate-profits-by-4-trillion-a-year-according-to-new-research
38. McKinsey (2018). Notes from the AI frontier modeling the impact of AI on the world economy. https://www.mckinsey.com/~/media/mckinsey/featured%20insights/artificial%20intelligence/notes%20from%20the%20frontier%20modeling%20the%20impact%20of%20ai%20on%20the%20world%20economy/mgi-notes-from-the-ai-frontier-modeling-the-impact-of-ai-on-the-world-economy-september-2018.ashx
39. McKinsey (2024). How manufacturing's Lighthouses are capturing the full value of AI. https://www.mckinsey.com/capabilities/operations/our-insights/how-manufacturings-lighthouses-are-capturing-the-full-value-of-ai
40. CFOdive (2024). Artificial intelligence may boost profit margins 2% over next five years: BofA. https://www.cfodive.com/news/artificial-intelligence-boost-profit-margins-five-years-GenAI-bofa/726910/
41. Deloitte (2024). Governance of AI: A critical imperative for today's boards. https://www2.deloitte.com/us/en/insights/topics/leadership/successful-ai-oversight-may-require-more-engagement-in-the-boardroom.html?id=us:2sm:3ab:genaibpr:eng:tmt:100924&pkid=K0204833
42. Gradus (2024). Use of artificial intelligence in marketing. https://gradus.app/en/open-reports/use-artificial-intelligence-marketing/
43. Statista (2024). Artificial Intelligence – Ukraine https://www.statista.com/outlook/tmo/artificial-intelligence/ukraine
44. UNHCR (2024). Ukraine refugee situation https://data.unhcr.org/en/situations/ukraine
45. National Bank of Ukraine (2024). Macroeconomic and Monetary Review https://bank.gov.ua/admin_uploads/article/MMR_2024-09.pdf?v=10