Journal of Information Systems Engineering and Management
2025, 10(29s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

AI in the Enterprise: Overcoming Adoption Barriers and Maximizing Business Value

Nidhi.V[1], Dr. Aswathy Prakash G[2], Balaji B[3], Aakancha R[4], M.Santhi[5], Sanjana.G[6]

[1] Student, Final Year, Saveetha School of Law, Saveetha Institute of Medical and Technical Sciences (SIMATS). Chennai, 600 077. nidhivani182@gmail.com,

2Associate Professor, Saveetha School of Law, Saveetha Institute of Medical and Technical Sciences (SIMATS), Chennai-77.

3Student, Final Year, Saveetha School of Law, Saveetha Institute of Medical and Technical Sciences (SIMATS). Chennai, 600 077.

4Student, Final Year, Saveetha School of Law, Saveetha Institute of Medical and Technical Sciences (SIMATS). Chennai, 600 077.

5Student, Final Year, Saveetha School of Law, Saveetha Institute of Medical and Technical Sciences (SIMATS). Chennai, 600 077.

6Student, Final Year, Saveetha School of Law, Saveetha Institute of Medical and Technical Sciences (SIMATS). Chennai, 600 077.

ARTICLE INFO

Received: 29 Dec 2024

Revised: 12 Feb 2025

Accepted: 27 Feb 2025

ABSTRACT

The adoption of artificial intelligence (AI) in enterprises presents immense opportunities for enhancing efficiency, decision-making, and innovation. However, organizations face multiple challenges, including technical, cultural, ethical, and regulatory barriers that hinder seamless AI integration. This paper explores the primary obstacles to AI adoption in enterprises, such as data privacy concerns, lack of skilled workforce, resistance to change, and implementation costs. It also examines strategic approaches for overcoming these challenges and maximizing the business value of AI. By leveraging AI-driven automation, predictive analytics, and intelligent decision-making systems, enterprises can achieve significant competitive advantages. Additionally, best practices for ensuring ethical AI deployment and organizational readiness are discussed. The paper provides insights into how enterprises can develop AI strategies that align with business objectives, ensuring long-term success and sustainable growth.

Keywords: Artificial Intelligence (AI), Enterprise AI Adoption, Business Value of AI, AI Implementation Challenges, AI Strategy, Ethical AI Deployment.

INTRODUCTION

Artificial intelligence (AI) has emerged as a transformative force across industries, enabling enterprises to enhance operational efficiency, improve decision-making, and create new business opportunities. The integration of AI technologies—ranging from machine learning and natural language processing to robotics and intelligent automation—has reshaped how organizations operate, compete, and innovate. AI-driven solutions offer immense potential for cost reduction, process optimization, customer engagement, and predictive analytics, allowing businesses to gain a significant competitive advantage. However, despite the promise of AI, enterprises face multiple adoption challenges that prevent them from fully leveraging its potential.

Problem Statement

While AI adoption in enterprises is accelerating, many organizations struggle with implementation due to technical, organizational, and ethical barriers. Key challenges include:

- **Data Quality and Privacy Concerns:** Enterprises require vast amounts of high-quality data for AI to function effectively. However, issues related to data silos, data privacy regulations (e.g., GDPR, CCPA), and security risks pose major obstacles.
- **Lack of Skilled Workforce:** AI adoption demands expertise in machine learning, data science, and AI ethics, but there is a significant shortage of professionals with the necessary skills.
- **Resistance to Change:** Organizational culture and resistance from employees can slow AI adoption. Many workers fear job displacement due to automation, while executives may be hesitant to invest in AI-driven transformation without clear ROI.
- **High Implementation Costs:** Deploying AI solutions requires significant investments in infrastructure, software, and training. Small and mid-sized enterprises (SMEs) often struggle to justify these costs.

- **Ethical and Regulatory Challenges:** Bias in AI models, transparency issues, and regulatory compliance are critical concerns that enterprises must address to ensure responsible AI deployment.

These challenges create a gap between AI's potential benefits and its real-world adoption in enterprises. Without a clear strategy for overcoming these barriers, organizations risk lagging behind competitors who successfully implement AI-driven innovations.

AUTHOR MOTIVATION

This paper is motivated by the need to bridge the gap between AI's potential and its practical application in enterprises. While numerous studies discuss AI's capabilities, fewer address the real-world obstacles enterprises face when implementing AI solutions. By examining AI adoption barriers and proposing strategies for maximizing business value, this paper aims to:

1. Provide a structured analysis of the challenges that hinder AI adoption in enterprises.
2. Explore best practices and frameworks for overcoming these obstacles.
3. Highlight successful case studies of AI-driven enterprise transformation.
4. Offer recommendations for organizations to align AI strategies with business goals while ensuring ethical and sustainable AI deployment.

By addressing these aspects, this paper seeks to equip business leaders, technology executives, and policymakers with the knowledge needed to drive AI adoption effectively and ethically.

Paper Outline

The paper is structured as follows:

- **Section 2: Understanding AI in Enterprises** – This section provides an overview of AI technologies relevant to enterprises, their applications, and the benefits they offer in different business functions.
- **Section 3: Barriers to AI Adoption** – A detailed discussion of the challenges enterprises face, including technical, financial, cultural, and regulatory obstacles.
- **Section 4: Strategies for Overcoming Adoption Barriers** – This section explores solutions such as data governance frameworks, workforce upskilling, change management strategies, and ethical AI guidelines.
- **Section 5: Maximizing Business Value through AI** – Analyzing how AI can create measurable business impact through automation, predictive analytics, customer insights, and competitive differentiation.
- **Section 6: Case Studies and Best Practices** – Real-world examples of enterprises that have successfully integrated AI and the lessons learned from their experiences.
- **Section 7: Conclusion and Future Directions** – Summarizing key insights, highlighting future research areas, and discussing trends that will shape AI adoption in enterprises.

This structured approach ensures a comprehensive examination of AI adoption in enterprises, offering actionable insights for organizations looking to harness AI's full potential.

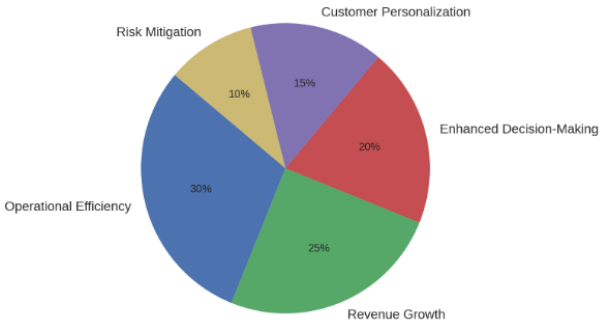


Fig.1: Business value of AI Implementation

LITERATURE REVIEW

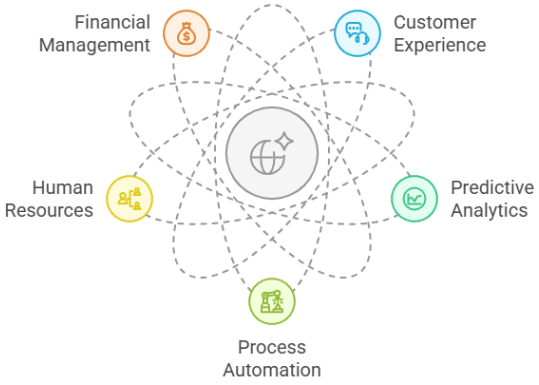
The adoption of artificial intelligence (AI) in enterprises has been widely discussed in academic and industry literature. Researchers and practitioners have explored AI's transformative potential, the barriers to its adoption, and strategies for maximizing business value. This section synthesizes existing literature on AI in enterprises, covering

key themes such as AI capabilities, adoption challenges, organizational readiness, ethical considerations, and business impact.

1. AI Capabilities and Business Applications

Artificial intelligence encompasses various technologies, including machine learning (ML), natural language processing (NLP), robotic process automation (RPA), and computer vision, all of which can drive significant business transformation. According to **Brynjolfsson and McAfee (2017)**, AI-powered automation has redefined business processes by enhancing efficiency and reducing human intervention. AI applications in enterprises span multiple domains:

- **Customer Experience and Service Automation:** AI-powered chatbots, virtual assistants, and sentiment analysis tools enhance customer support and engagement (**Davenport & Ronanki, 2018**).
- **Predictive Analytics and Decision Support:** Machine learning models enable businesses to anticipate market trends, optimize supply chains, and enhance risk management (**Makridakis, 2017**).
- **AI-Driven Process Automation:** RPA and AI-based workflow automation reduce operational costs and improve accuracy (**Goyal et al., 2021**).
- **AI in Human Resources:** AI-driven recruitment, employee engagement analysis, and performance management contribute to talent optimization (**Berman, 2019**).
- **AI for Financial and Risk Management:** AI-based fraud detection, algorithmic trading, and credit scoring improve financial decision-making (**Westerman, Bonnet, & McAfee, 2014**).



2. Barriers to AI Adoption in Enterprises

Despite its advantages, AI adoption in enterprises faces multiple challenges. Several researchers have identified technical, financial, and organizational barriers that hinder seamless AI implementation.

2.1 Technical and Data Challenges:

Enterprises require high-quality, structured, and unbiased data for AI models to function effectively. However, data fragmentation, poor data governance, and issues related to data security and privacy pose significant obstacles (**Russell & Norvig, 2021**). The lack of interoperability between legacy systems and AI-based technologies further complicates adoption (**Agrawal, Gans, & Goldfarb, 2018**).

2.2 Talent Shortage and Skills Gap

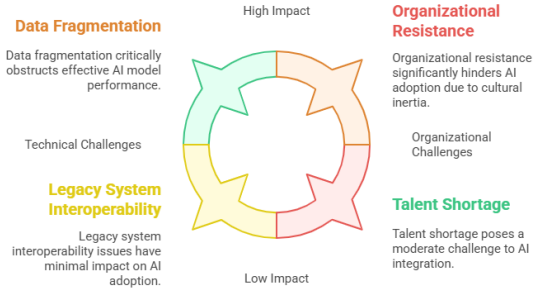
There is a critical shortage of AI professionals with expertise in machine learning, data science, and AI ethics. According to **Haenlein & Kaplan (2019)**, enterprises struggle to attract and retain skilled AI professionals due to high demand and competition from technology giants. Upskilling existing employees and fostering an AI-literate workforce are necessary to bridge this gap (**Bughin et al., 2018**).

2.3 Organizational Resistance to Change

AI-driven transformation requires changes in workflows, employee roles, and corporate culture. However, resistance from employees and management due to fear of job displacement or uncertainty about AI's benefits can slow down adoption (**Kane et al., 2018**). Effective change management strategies, leadership support, and clear communication are crucial for successful AI integration (**Autor, 2015**).

2.4 Ethical and Regulatory Concerns

AI systems raise ethical concerns related to bias, transparency, and accountability. Studies highlight that biased training data can result in discriminatory AI outcomes, particularly in hiring, credit scoring, and law enforcement applications (**Siau & Wang, 2018**). Additionally, enterprises must navigate evolving regulatory frameworks such as GDPR and CCPA, which impose stringent data protection and privacy requirements (**Jarrahi, 2018**).



3. Strategies for Successful AI Adoption

To overcome AI adoption barriers, organizations need strategic frameworks that align AI initiatives with business goals. The literature suggests several best practices for successful AI deployment.

3.1 Data Governance and Infrastructure Readiness

A strong data governance framework ensures AI models are trained on high-quality, unbiased, and compliant data. **Makridakis (2017)** emphasizes the need for organizations to invest in cloud computing, data lakes, and AI-ready infrastructure to support large-scale AI implementations.

3.2 Workforce Upskilling and AI Training

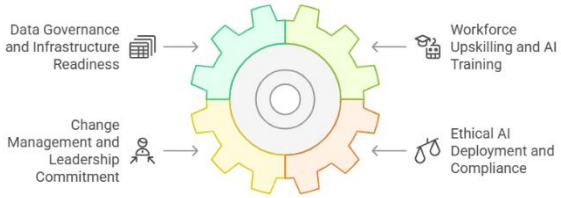
Organizations must invest in AI literacy programs and reskilling initiatives to prepare employees for AI-driven workflows. **Davenport & Ronanki (2018)** suggest that enterprises should establish AI centers of excellence to foster innovation and collaboration between technical and non-technical teams.

3.3 Change Management and Leadership Commitment

AI adoption requires strong leadership commitment and a well-defined change management strategy. **Brynjolfsson & McAfee (2017)** argue that enterprises should cultivate an AI-positive culture by demonstrating AI's value in augmenting human capabilities rather than replacing jobs.

3.4 Ethical AI Deployment and Compliance

Ethical AI governance frameworks, such as explainable AI (XAI) and fairness-aware machine learning, can mitigate risks associated with AI bias and lack of transparency. **Siau & Wang (2018)** advocate for AI ethics committees within organizations to oversee responsible AI development and deployment.

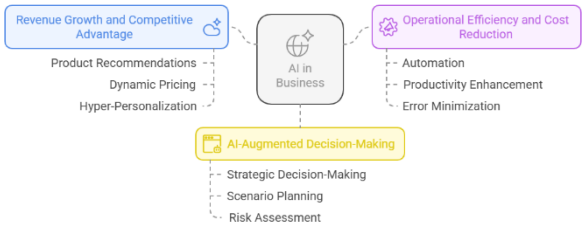


4. Maximizing Business Value through AI

Enterprises that successfully implement AI can unlock significant business value. Studies highlight the economic impact of AI-driven innovation:

- **Revenue Growth and Competitive Advantage:** AI-driven product recommendations, dynamic pricing, and hyper-personalization increase customer satisfaction and drive revenue growth (**Jarrahi, 2018**).
- **Operational Efficiency and Cost Reduction:** AI-powered automation reduces manual tasks, enhances productivity, and minimizes errors (**Berman, 2019**).
- **AI-Augmented Decision-Making:** Enterprises leverage AI to enhance strategic decision-making, scenario planning, and risk assessment (**Haenlein & Kaplan, 2019**).

Case studies from industry leaders such as Google, Amazon, and Microsoft demonstrate how AI investments yield tangible business benefits, reinforcing the necessity of AI-driven transformation in enterprises (**Bughin et al., 2018**).



The literature underscores AI's potential to revolutionize enterprises by improving efficiency, driving innovation, and enhancing decision-making. However, adoption barriers such as data challenges, skill shortages, organizational resistance, and ethical concerns must be addressed. By implementing best practices in data governance, workforce upskilling, change management, and ethical AI deployment, enterprises can maximize AI's business value. This paper builds on existing research by providing actionable insights for overcoming AI adoption challenges and developing sustainable AI strategies for enterprises.

Breaking Down Adoption Challenges and Unlocking Full Business Potential of AI in the Enterprise

The integration of Artificial Intelligence (AI) into enterprise operations has emerged as a transformative force, offering unprecedented opportunities for innovation, efficiency, and competitive advantage. However, despite its potential, the widespread adoption of AI within enterprises faces significant challenges that hinder its full realization. Addressing these barriers is critical to unlocking the transformative business value that AI promises. This paper explores the key challenges associated with AI adoption in the enterprise context and proposes strategies to maximize its business potential.

Key Adoption Challenges

1. **Cultural and Organizational Resistance**: One of the most pervasive barriers to AI adoption is resistance to change within organizational cultures. Employees and leadership may be skeptical of AI's capabilities or fear job displacement, leading to reluctance in embracing AI-driven solutions. Overcoming this resistance requires a shift in mindset, emphasizing AI as a tool for augmentation rather than replacement, and fostering a culture of innovation and adaptability.

2. **Data Quality and Accessibility**: AI systems rely heavily on high-quality, structured data to deliver accurate insights and predictions. Many enterprises struggle with fragmented, siloed, or incomplete data, which limits the effectiveness of AI implementations. Establishing robust data governance frameworks and investing in data integration tools are essential to ensure data readiness for AI applications.

3. **Skill Gaps and Talent Shortages**: The successful deployment of AI requires specialized skills in data science, machine learning, and AI engineering. However, there is a significant talent gap in the market, making it difficult for enterprises to build and maintain in-house AI capabilities. Upskilling existing employees, partnering with academic institutions, and leveraging external expertise through collaborations or outsourcing can help bridge this gap.

4. **Ethical and Regulatory Concerns**: The use of AI raises ethical questions related to bias, transparency, and accountability. Enterprises must navigate complex regulatory landscapes and ensure compliance with data privacy laws such as GDPR or CCPA. Developing ethical AI frameworks and engaging in proactive dialogue with regulators can help mitigate these concerns.

5. **High Implementation Costs**: The initial investment required for AI infrastructure, tools, and talent can be prohibitively high for many organizations, particularly small and medium-sized enterprises (SMEs). A phased approach to AI adoption, starting with low-risk, high-impact use cases, can help demonstrate ROI and justify further investment.

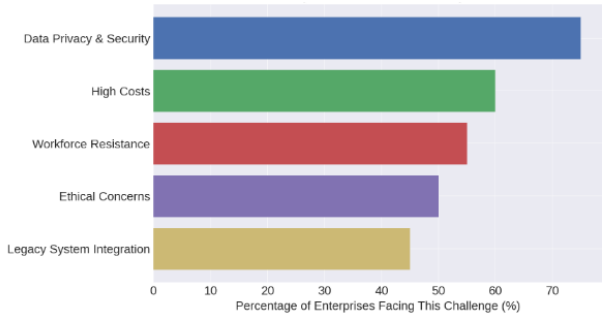


Fig.2: AI adoption Potential Barriers

Strategies to Maximize Business Value

1. **Align AI Initiatives with Business Objectives**: To unlock the full potential of AI, enterprises must align AI initiatives with overarching business goals. Identifying high-impact use cases—such as predictive analytics, customer personalization, or supply chain optimization—ensures that AI investments deliver measurable value.

2. **Foster Cross-Functional Collaboration**: Successful AI adoption requires collaboration across departments, including IT, operations, and business units. Creating cross-functional teams ensures that AI solutions are tailored to address specific business needs and are seamlessly integrated into existing workflows.

3. **Invest in Change Management and Training**: Addressing cultural resistance and skill gaps requires a comprehensive change management strategy. Enterprises should invest in training programs to equip employees with the skills needed to work alongside AI systems and communicate the benefits of AI adoption effectively.

4. **Leverage Cloud and AI-as-a-Service Platforms**: Cloud-based AI platforms and AI-as-a-Service (AIaaS) offerings can reduce the cost and complexity of AI implementation. These solutions provide scalable infrastructure, pre-built models, and access to cutting-edge technologies, enabling enterprises to experiment and innovate without significant upfront investment.

5. **Prioritize Ethical AI Practices**: Building trust in AI systems is critical for long-term success. Enterprises should adopt ethical AI principles, such as fairness, transparency, and accountability, and establish mechanisms for ongoing monitoring and auditing of AI systems.

While the adoption of AI in the enterprise presents significant challenges, overcoming these barriers is essential to unlocking its full business potential. By addressing cultural resistance, improving data readiness, bridging skill gaps, and prioritizing ethical practices, enterprises can harness the power of AI to drive innovation, enhance operational efficiency, and create sustainable competitive advantage. As AI continues to evolve, organizations that proactively tackle these challenges will be well-positioned to lead in the era of intelligent enterprise.

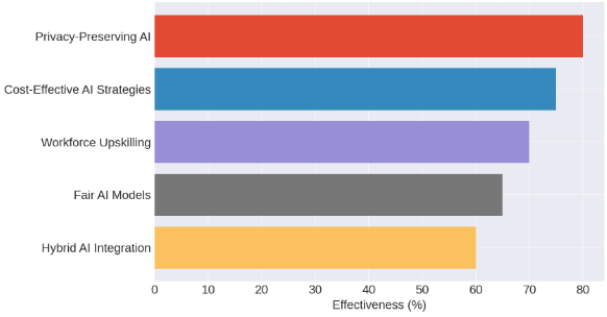


Fig.3: Strategies for overcoming AI challenges

Case Study: Best Practices of AI in the Enterprise

Artificial Intelligence (AI) is transforming the enterprise landscape, driving innovation, optimizing business processes, and enabling data-driven decision-making. However, AI adoption comes with contemporary challenges, including data privacy concerns, high implementation costs, workforce resistance, ethical dilemmas, and regulatory constraints. This case study examines best practices in enterprise AI adoption by analyzing real-world examples from leading organizations. It highlights challenges, corresponding solutions, and strategic recommendations that businesses can implement to maximize AI's value.

To understand AI adoption in the enterprise, we explore the AI strategies of three major organizations: **Amazon, JPMorgan Chase, and Siemens**. These companies represent different sectors—e-commerce and cloud computing (Amazon), finance and banking (JPMorgan Chase), and industrial automation and manufacturing (Siemens).

Company	Industry	AI Application Focus
Amazon	E-commerce & Cloud	Personalized recommendations, logistics, AI cloud services
JPMorgan Chase	Finance & Banking	Fraud detection, AI-driven trading, customer insights
Siemens	Manufacturing & Industrial Automation	Predictive maintenance, digital twins, industrial AI

Each of these companies has encountered significant AI adoption challenges and has implemented innovative strategies to overcome them.

Challenge 1: Data Privacy and Security Concerns

Problem: AI systems require vast amounts of data to function effectively, but enterprises must ensure compliance with data protection regulations such as the **General Data Protection Regulation (GDPR)** and the **California Consumer Privacy Act (CCPA)**. Unauthorized data access, cybersecurity threats, and AI-driven decision-making biases pose risks to enterprises.

Example: JPMorgan Chase
JPMorgan Chase leverages AI for fraud detection and risk assessment but faces challenges in handling sensitive financial data securely.

Solution Implemented:

- **AI-Powered Cybersecurity**: JPMorgan implemented **Darktrace**, an AI-driven cybersecurity system that continuously monitors threats and anomalies in real time.
- **Explainable AI (XAI) Models**: The bank adopted AI models that provide transparency and accountability in decision-making to meet regulatory standards.
- **Federated Learning**: Instead of centralizing customer data, JPMorgan employed federated learning techniques that allow machine learning models to be trained across decentralized data sources without sharing raw data.

Recommendation:
Enterprises should adopt **privacy-preserving AI techniques** such as **differential privacy, homomorphic encryption, and federated learning** to balance AI's data requirements with regulatory compliance.

Challenge 2: High AI Implementation Costs and ROI Justification

Problem: AI adoption requires significant investments in infrastructure, research, and skilled personnel. Many enterprises struggle to quantify the return on investment (ROI) of AI projects.

Example: Siemens
Siemens faced the challenge of integrating AI into its industrial automation processes while ensuring cost-effectiveness.

Solution Implemented:

- **Digital Twins Technology**: Siemens adopted AI-powered **digital twins** to simulate real-world industrial environments, reducing costly physical prototypes and improving predictive maintenance.
- **AI-as-a-Service (AIaaS)**: Siemens partnered with **Microsoft Azure** to offer AI-driven industrial automation solutions as a cloud-based service, lowering upfront AI costs.
- **ROI-Based AI Prioritization Framework**: Siemens developed an AI prioritization framework to evaluate projects based on **business impact, feasibility, and alignment with strategic goals**.

Recommendation:
Businesses should implement **cost-effective AI strategies** such as **cloud-based AI services**, **digital twins**, and **ROI-based project selection frameworks** to ensure sustainable AI investment.

Challenge 3: Workforce Resistance and AI Skills Gap

Problem: AI-driven automation has raised concerns about **job displacement** and resistance to AI adoption within enterprises. Additionally, enterprises face a shortage of AI-skilled professionals.

Example: Amazon
Amazon's extensive use of AI in logistics, warehouse management, and customer service automation led to concerns among employees about job security.

Solution Implemented:

- **AI Upskilling Programs**: Amazon launched the **"Machine Learning University"**, a program that trains non-technical employees in AI and ML skills.
- **Human-AI Collaboration Model**: Rather than replacing human jobs, Amazon optimized AI to work **alongside** employees, enhancing their productivity (e.g., AI-powered inventory management assisting warehouse staff).
- **AI Governance and Transparency**: Amazon established internal AI governance teams to ensure **clear communication** about AI's role and to address employee concerns.

Recommendation:
Organizations should invest in **AI literacy and workforce upskilling programs**, adopt **human-AI collaboration models**, and ensure **transparent AI governance** to reduce workforce resistance.

Challenge 4: Ethical AI Deployment and Algorithmic Bias

Problem: AI algorithms can inadvertently reinforce biases present in training data, leading to unfair or discriminatory outcomes.

Example: JPMorgan Chase
Financial institutions must ensure fairness in AI-driven credit scoring, lending decisions, and fraud detection to prevent discriminatory outcomes.

Solution Implemented:

- **Fairness-Aware Machine Learning**: JPMorgan implemented bias-detection algorithms that analyze AI models for potential unfairness.
- **Diverse AI Training Datasets**: The bank used **diverse, representative datasets** to train AI models, reducing biases in credit risk assessments.
- **Regulatory AI Compliance Framework**: JPMorgan actively collaborates with regulators to ensure compliance with AI fairness laws.

Recommendation:
Enterprises should adopt **fairness-aware AI algorithms**, use **bias-mitigation techniques**, and establish **AI ethics committees** to ensure responsible AI deployment.

Challenge 5: AI Integration with Legacy Systems

Problem: Many enterprises operate on outdated legacy systems that are incompatible with modern AI technologies.

Example: Siemens
Siemens had to integrate AI with legacy industrial automation systems while minimizing operational disruptions.

Solution Implemented:

- **Hybrid AI Approach**: Siemens implemented a **hybrid AI strategy**, combining on-premises AI solutions with cloud-based AI for gradual modernization.
- **Edge AI Deployment**: Instead of relying entirely on cloud-based AI, Siemens deployed **Edge AI** to process data closer to industrial machines, reducing latency and ensuring real-time decision-making.
- **API-First Strategy**: Siemens developed **AI APIs** that seamlessly connect new AI applications with existing legacy infrastructure.

Recommendation: Enterprises should adopt **hybrid AI strategies**, leverage **Edge AI for real-time analytics**, and implement **API-based AI integration** for smooth modernization.

Key Takeaways: *This case study highlights the* ***best practices*** *in AI adoption by leading enterprises facing contemporary challenges. The key takeaways include:*

- **Data Privacy & Security:** Implement AI-powered cybersecurity, explainable AI, and federated learning.
- **Cost-Effective AI Strategies:** Utilize cloud-based AI, digital twins, and ROI-driven AI project selection.
- **Workforce Adaptation:** Invest in AI literacy programs, adopt human-AI collaboration models, and ensure transparency.
- **Ethical AI Implementation:** Deploy bias-mitigation techniques, fairness-aware ML, and AI ethics committees.
- **Legacy System Integration:** Use hybrid AI, Edge AI, and API-driven AI frameworks.

By following these best practices, enterprises can **overcome AI adoption barriers, maximize business value, and ensure sustainable AI-driven transformation**.

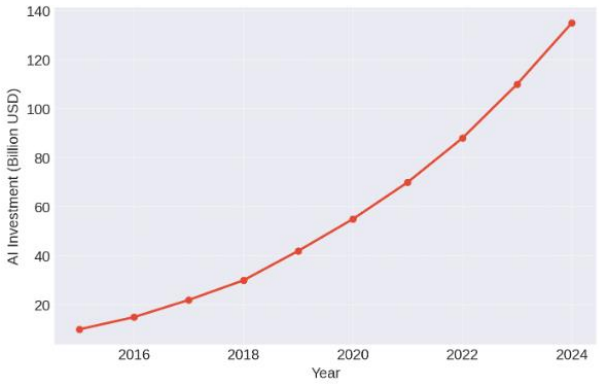


Fig.: AI Investment Trend

Conclusion

AI has emerged as a transformative force in enterprises, offering significant benefits such as automation, predictive analytics, and enhanced decision-making. However, its adoption is often hindered by challenges, including data privacy concerns, high implementation costs, workforce resistance, ethical risks, and legacy system integration. This paper explored best practices from leading enterprises—Amazon, JPMorgan Chase, and Siemens—that successfully addressed these challenges through AI-powered cybersecurity, federated learning, cost-effective AI strategies, workforce upskilling, ethical AI governance, and hybrid AI integration. For enterprises to maximize AI's business value, they must adopt **privacy-preserving AI, invest in AI literacy, ensure fair and ethical AI deployment, and integrate AI seamlessly with existing infrastructure**. By following these best practices, businesses can drive sustainable AI transformation and gain a competitive edge in the digital era. Future research should explore AI's evolving regulatory landscape, its long-term impact on employment, and emerging technologies such as **Edge AI, generative AI, and quantum computing** to further enhance AI adoption in enterprises.

References

[1] Brynjolfsson, E., & McAfee, A. (2017). *Machine, platform, crowd: Harnessing our digital future*. W. W. Norton & Company.

[2] Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. *Harvard Business Review, 96*(1), 108-116.

[3] Makridakis, S. (2017). The forthcoming AI (r)evolution: Implications for business and society. *Futures, 90*, 46-60.

[4] Ransbotham, S., Khodabandeh, S., Fehling, R., LaFountain, B., & Kiron, D. (2020). Expanding AI's impact with organizational learning. *MIT Sloan Management Review,*

[5] Goyal, S., Esposito, M., Kapoor, A., & Sergi, B. S. (2021). Understanding artificial intelligence-based entrepreneurship in the digital era. *Business Horizons, 64*(5), 579-5

[6] Berman, S. J. (2019). The role of artificial intelligence in business transformation. *Journal of Business Strategy, 40*(5), 10-17.

[7] Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Review Press.

[8] Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach* (4th ed.). Pearson.

[9] Agrawal, A., Gans, J., & Goldfarb, A. (2018). *Prediction machines: The simple economics of artificial intelligence*. Harvard Business Review Press.

[10] Haenlein, M., & Kaplan, A. (2019). A brief history of artificial intelligence: On the past, present, and future of AI. *California Management Review, 61*(4), 5-14.

[11] Bughin, J., Seong, J., Manyika, J., Chui, M., & Joshi, R. (2018). Notes from the AI frontier: Modeling the impact of AI on the world economy. *McKinsey Global Institute*. Retrieved from https://www.mckinsey.com

[12] Vinod H. Patil, Sheela Hundekari, Anurag Shrivastava, Design and Implementation of an IoT-Based Smart Grid Monitoring System for Real-Time Energy Management, Vol. 11 No. 1 (2025): IJCESEN. https://doi.org/10.22399/ijcesen.854

[13] Dr. Sheela Hundekari, Dr. Jyoti Upadhyay, Dr. Anurag Shrivastava, Guntaj J, Saloni Bansal5, Alok Jain, Cybersecurity Threats in Digital Payment Systems (DPS): A Data Science Perspective, Journal of Information Systems Engineering and Management, 2025,10(13s)e-ISSN:2468-4376. https://doi.org/10.52783/jisem.v10i13s.2104

[14] Dr. Swapnil B. Mohod, Ketki R. Ingole, Dr. Chethana C, Dr. RVS Praveen, A. Deepak, Mrs B. Sukshma, Dr. Anurag Shrivastava."Using Convolutional Neural Networks for Accurate Medical Image Analysis", 3819-3829, DOI: https://doi.org/10.52783/fhi.351

[15] Dr. Mohammad Ahmar Khan, Dr. Shanthi Kumaraguru, Dr. RVS Praveen, Narender Chinthamu, Dr Rashel Sarkar, Nilakshi Deka, Dr. Anurag Shrivastava, "Exploring the Role of Artificial Intelligence in Personalized Healthcare: From Predictive Diagnostics to Tailored Treatment Plans", 2786-2798, DOI: https://doi.org/10.52783/fhi.262

[16] Sandeep Lopez ,Dr. Vani Sarada ,Dr. RVS Praveen, Anita Pandey ,Monalisa Khuntia, Dr Bhadrappa Haralayya, "Artificial Intelligence Challenges and Role for Sustainable Education in India: Problems and Prospects", Vol. 44 No. 3 (2024): LIB PRO. 44(3), JUL-DEC 2024 (Published: 31-07-2024), DOI: https://doi.org/10.48165/bapas.2024.44.2.1

[17] Shrivastava, A., Chakkaravarthy, M., Shah, M.A..A Novel Approach Using Learning Algorithm for Parkinson's Disease Detection with Handwritten Sketches. In Cybernetics and Systems, 2022

[18] Shrivastava, A., Chakkaravarthy, M., Shah, M.A., A new machine learning method for predicting systolic and diastolic blood pressure using clinical characteristics. In *Healthcare Analytics*, 2023, 4, 100219

[19] Shrivastava, A., Chakkaravarthy, M., Shah, M.A.,Health Monitoring based Cognitive IoT using Fast Machine Learning Technique. In *International Journal of Intelligent Systems and Applications in Engineering*, 2023, 11(6s), pp. 720–729

[20] Shrivastava, A., Rajput, N., Rajesh, P., Swarnalatha, S.R., IoT-Based Label Distribution Learning Mechanism for Autism Spectrum Disorder for Healthcare Application. In *Practical Artificial Intelligence for Internet of Medical Things: Emerging Trends, Issues, and Challenges*, 2023, pp. 305–321

[21] Shrivastava, A., Pundir, S., Sharma, A., ...Kumar, R., Khan, A.K. Control of A Virtual System with Hand Gestures. In *Proceedings - 2023 3rd International Conference on Pervasive Computing and Social Networking, ICPCSN 2023,* 2023, pp. 1716–1721

[22] Sheela Hhundekari, Advances in Crowd Counting and Density Estimation Using Convolutional Neural Networks, International Journal of Intelligent Systems and Applications in Engineering, Volume 12, Issue no. 6s (2024) Pages 707–719

[23] Kamal Upreti, Prashant Vats, Gauri Borkhade, Ranjana Dinkar Raut, Sheela Hundekari, Jyoti Parashar, An IoHT System Utilizing Smart Contracts for Machine Learning -Based Authentication, 2023 International Conference on Emerging Trends in Networks and Computer Communications (ETNCC), 10.1109/ETNCC59188.2023.10284960

[24] S Gupta, N Singhal, S Hundekari, K Upreti, A Gautam, P Kumar, R Verma, Aspect Based Feature Extraction in Sentiment Analysis using Bi-GRU-LSTM Model, Journal of Mobile Multimedia, 935-960

[25] PR Kshirsagar, K Upreti, VS Kushwah, S Hundekari, D Jain, AK Pandey, Prediction and modeling of mechanical properties of concrete modified with ceramic waste using artificial neural network and regression model, Signal, Image and Video Processing, 1-15

[26] ST Siddiqui, H Khan, MI Alam, K Upreti, S Panwar, S Hundekari, A Systematic Review of the Future of Education in Perspective of Block Chain, Journal of Mobile Multimedia, 1221-1254

[27] Kamal Upreti, Anmol Kapoor, Sheela Hundekari,Deep Dive Into Diabetic Retinopathy Identification: A Deep Learning Approach with Blood Vessel Segmentation and Lesion Detection, 2024: Vol 20 Iss 2, https://doi.org/10.13052/jmm1550-4646.20210

[28] Ramesh Chandra Poonia; Kamal Upreti; Sheela Hundekari; Priyanka Dadhich; Khushboo Malik; Anmol Kapoor, An Improved Image Up-Scaling Technique using Optimize Filter and Iterative Gradient Method, 2023 3rd International Conference on Mobile Networks and Wireless Communications (ICMNWC) ,04-05 December 2023, 10.1109/ICMNWC60182.2023.10435962

[29] Venata Sai Chandra Prasanth Narisetty and Tejaswi Maddineni, Revolutionizing Mobility: The Latest Advancements in Autonomous Vehicle Technology, Nanotechnology Perceptions, 20 No. S12(2024),1354–1367.

[30] Venata Sai Chandra Prasanth Narisetty and Tejaswi Maddineni,Powering the Future: Innovations in Electric Vehicle Battery Recycling, Nanotechnology Perceptions 20 No. S13 (2024) 2338-2351.

[31] William, P., Shrivastava, A., Chauhan, H., Vasantha Kumari, T. N., & Singh, P. (2022). Framework for intelligent smart city deployment via artificial intelligence software networking. Proceedings of 3rd International Conference on Intelligent Engineering and Management (ICIEM 2022), 455–460.

[32] Chandra Saxena, M., Banu, F., Shrivastava, A., Thyagaraj, M., & Upadhyay, S. (2022). Comprehensive analysis of energy efficient secure routing protocol over sensor network. Materials Today: Proceedings, 62, 5003–5007.

[33] Chandra Saha, B., Shrivastava, A., Kumar Jain, S., Nigam, P., & Hemavathi, S. (2022). On-grid solar microgrid temperature monitoring and assessment in real time. Materials Today: Proceedings, 62, 5013–5020.

[34] Haripriya, D., Kumar, K., Shrivastava, A., Moyal, V., & Singh, S. K. (2022). Energy-efficient UART design on FPGA using dynamic voltage scaling for green communication in industrial sector. Wireless Communications and Mobile Computing, 2022, 4336647.

[35] Chilukuri, B. V. S., Hemalatha, N., Shrivastava, A., Jain, S. K., & Hemavathi, S. (2022). Remote solar microgrid output current transient diagnosis. Proceedings of 2nd International Conference on Innovative Practices in Technology and Management (ICIPTM 2022), 719–724.

[36] Patidar, M., Shrivastava, A., Miah, S., Kumar, Y., & Sivaraman, A. K. (2022). An energy efficient high-speed quantum-dot based full adder design and parity gate for nano application. Materials Today: Proceedings, 62, 4880–4890.

[37] Kumar, A. S., Kumar, S. J. N., Gupta, S. C., Kumar, K., & Jain, R. (2022). IoT communication for grid-tie matrix converter with power factor control using the adaptive fuzzy sliding (AFS) method. Scientific Programming, 2022, 5649363.

[38] Krishna, K. M., Jain, A., Kang, H. S., Shrivastava, A., & Singh, S. K. (2022). Development of the broadband multilayer absorption materials with genetic algorithm up to 8 GHz frequency. Security and Communication Networks, 2022, 4400412.