https://doi.org/10.33472/AFJBS.6.6.2024.2132-2147

African Journal of Biological Sciences

Journal homepage: http://www.afjbs.com

Research Paper Open Access

Influence of Artificial Intelligence on Management Strategies in Biological Sciences

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Article Info

Volume 6, Issue 6, June 2024

Received: 05 April 2024

Accepted: 10 May 2024

Published: 06 June 2024

doi: 10.33472/AFJBS.6.6.2024.2132-2147

ABSTRACT:

Every day, we engage in numerous artificial intelligence tasks such as spam filters, or voice recognition systems. Often, we do so without consciously recognizing that these tasks rely on AI, as AI technology has become ubiquitous in the past decade. From a business standpoint, AI empowers us to automate routine decision-making processes. Consequently, we can cut costs and turnaround times while simultaneously enhancing profits and profit margins. Nevertheless, there exist countless untapped AI opportunities for businesses, suggesting that we are merely scratching the surface of its potential. In the subsequent section, this chapter furnishes insights and contemporary strategies on how to reimagine your company to evolve into an AI-centric enterprise primed for success in an increasingly competitive landscape.

1. Introduction:

In the realms of management and business, artificial intelligence stands as a cornerstone. With a global advancement rate exceeding 12.9% in recent years, AI has emerged as a transformative force, reshaping both public and private sectors alike. Embracing and investing in AI necessitates a fresh management paradigm, one that harmonizes visionary leadership with technical acumen across a burgeoning expanse of specialized knowledge. Notably, AI adoption has yielded a remarkable 40% enhancement in business productivity.
The pursuit of refining a company's business management operations is an ongoing, arduous endeavour. Yet, therein lies boundless potential for advancement, as adjustments and adaptations can be executed at any juncture. What, then, underscores the potential of artificial intelligence in elevating our business management capabilities?

Objective of The Study:
- To highlight the pervasive presence of AI in daily operations and its increasing mainstream adoption.
- To showcase the benefits of AI for businesses, including cost reduction and profit optimization through automated decision-making.
- To explore the untapped potential of AI within businesses and suggest opportunities for further integration.
- To provide actionable guidance and best practices for companies aiming to become AI-driven and thrive in competitive markets.
- To underscore the importance of rethinking business strategies to leverage AI effectively in an evolving technological landscape.

Scope of the Study:
- Overview of the prevalence of artificial intelligence (AI) in everyday operations, including examples like independent buses, spam detection, and voice recognition systems.
- Emphasis on AI's mainstream adoption over the past decade and its role in automating decision-making processes in businesses.
- Discussion on the benefits of AI adoption for businesses, such as cost reduction, shorter turnaround times, increased profitability, and improved profit margins.
- Exploration of the potential for further AI integration within businesses, beyond current applications, indicating the expanding scope of AI's impact.
- Introduction of guidance and best practices for companies seeking to transition into AI-driven operations to stay competitive in the market.

Review of Literature:
Neha Soni (2020) In recent years, the proliferation of intelligent products and services has sparked debate over whether the emergence of AI is merely hype or a genuine transformative force. This paper explores the wide-ranging implications of AI, investigating its positive and negative impacts on governments, communities, companies, and individuals. Examining AI's influence from research and innovation to deployment, the paper also considers its effects on entrepreneurial activities and the global market. By analyzing top AI startups, the research aims to provide insights into AI's potential to revolutionize business operations and shape the global economy.

Shahriar Akter (2020) This study examines digital business transformation through four emerging technology fields: artificial intelligence, blockchain, cloud, and data analytics (ABCD). It investigates their operations and value propositions, considering their convergence.

The potential of this hybridization, integration, and convergence remains underexplored due to rapid innovation. Through a multidisciplinary approach, the study uncovers diverse applications across vertical sectors, offering avenues for future research. Additionally, it underscores the practical implications of these technologies.

Bharadiya (2024) The continuous evolution of business, coupled with recent advancements in artificial intelligence (AI), presents opportunities for enhancing various business practices through novel forms of collaboration, offering a significant competitive edge. This swiftly evolving technology facilitates the introduction of innovative services and new modes of interaction with consumers and employees alike. The digitalization of AI underscores the importance for businesses to maintain focus on current strategies while proactively pursuing new opportunities in the market. Across various industry sectors, AI techniques are being deployed and revolutionizing traditional practices. This review delves into the application of AI techniques in both business operations and diverse industry sectors.

Harikumar Pallathadka (2023), In e-commerce and finance, AI is extensively employed to enhance customer experience, streamline supply chain management, boost operational efficiency, and minimize costs, all with the overarching aim of establishing standardized, reliable methods for product quality control and exploring innovative approaches to customer outreach and service while keeping expenses low. Machine learning and deep learning represent two prevalent AI methodologies, utilized by individuals, businesses, and government entities alike to anticipate and derive insights from data. Currently, there is ongoing development of machine learning models tailored to the intricate and varied data landscape of the food industry. This article delves into the applications of machine learning and artificial intelligence across e-commerce, corporate management, and finance, spanning sales growth, profit maximization, sales forecasting, inventory management, security, fraud detection.

Simon Kaggwa (2024) This paper explores how Artificial Intelligence (AI) is reshaping strategic decision-making in business, focusing on its disruptive impact and potential for enhancing corporate performance. Through a thorough literature review, it analyses AI's integration into business management, its influence on performance metrics, and its role in fostering inclusive practices. Key findings highlight AI as a strategic asset that redefines decision-making, offering opportunities for innovation and efficiency. Recommendations stress the importance of aligning AI with core values and strategic objectives. As AI evolves, its role in shaping business decisions is expected to significantly impact the corporate landscape.

Shrutika Mishra (2021) Artificial intelligence stands as the foremost and most comprehensive cognitive engine in the ecosystem, offering a wealth of general knowledge. The AI business platform model closely aligns with the cloud SaaS model, providing AI solutions that seamlessly integrate with other digital systems like Customer Relationship Management (CRM) and Enterprise Resource Planning (ERP) platforms. Through coordinated access to digital data, AI fuels business advancements across various phases, with businesses typically opting for a recurring subscription model. This paper aims to highlight the proactive utilization of AI and machine learning (ML) technology in driving innovation and dynamics within enterprise digital platform business models.

Andrea Sestino (2021) The portrayal of Artificial Intelligence (AI) as a disruptive force in business has been characterized by a lack of structure and clarity in both academic and professional literature. This study seeks to bring coherence to the understanding of AI's impact

on business by conducting a thorough and systematic literature review. Through the analysis of 3780 contributions using a unique combination of machine learning algorithms (LDA and hierarchical clustering), this research aims to offer a clear definition of AI's current state. The review yields a structured classification of current research streams and identifies promising emerging trends. The results delineate six key topics categorized into three overarching themes: Implications, Applications, and Methods (IAM model). By providing this analytical framework, our study aims to equip researchers and practitioners with a comprehensive understanding of AI's role in driving business value.

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José Luis Ruiz-Real (2023) Artificial Intelligence has emerged as a disruptive force in the business landscape, undergoing rapid evolution throughout the 20th century. Concepts such as Neural Networks, Machine Learning, and Deep Learning have become synonymous with digital marketing, decision-making processes, Industry 4.0, and business digital transformation. As economic entities recognize the competitive advantages offered by AI, interest in this technology continues to grow. This research aims to analyze the current state of Artificial Intelligence research in the business domain. Utilizing bibliometric analysis through the Web of Science and Scopus databases, this paper employs a fractional counting method to identify 11 clusters and the most prevalent terms associated with AI research. By delineating the main trends in AI research within business contexts, this study also proposes future avenues for inquiry in this rapidly evolving field.

2. Research Methodology

Primary data collection serves as the methodology employed to underpin the conclusion. It involves gathering data directly from the source, encompassing techniques such as surveys, interviews, observations, experiments, and focus groups. This approach is frequently employed to procure targeted information tailored to a specific research inquiry or project.

Research Design:

A research design is a comprehensive plan for gathering, interpreting, and analyzing data. This chapter describes the study's research design, data sources, sampling strategy, sample size, questionnaire design, and data analysis technique. A detailed explanation of the sampling plan, data gathering procedures, data analysis, and pilot research is provided. Both primary and secondary data serve as the foundation for this study. The respondents' data for this study was gathered using a survey. Analytical and descriptive research are used in this work. Research questions are constructed on indicating the factors such as fintech startups in India, revenue generation in e business, fintech applications, banking operations, refund policies, growth of AI, payment methods, difference of manual recording and AI.

Findings and Analysis:

The researcher’s primary data shows the clear overview of how AI used by humans in business management and how AI influence the strategic decisions taken in business management over all. This includes the overall employee satisfaction and engagement with management after implementing the AI in business management. This below attached data will include the researcher’s questionnaire prepared for the collection of primary data from various different workpeople.

TABLE 1: How has AI implementation impacted the speed of response to customer inquiries or requests?

the speed of response to customer inquiries					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) Significantly faster	20	32.3	32.3	32.3
	b) Moderately faster	21	33.9	33.9	66.1
	c) No significant change	7	11.3	11.3	77.4
	d) Moderately slower	10	16.1	16.1	93.5
	e) Significantly slower	4	6.5	6.5	100.0
	Total	62	100.0	100.0	

(Source: Primary Data)

CHART 1:

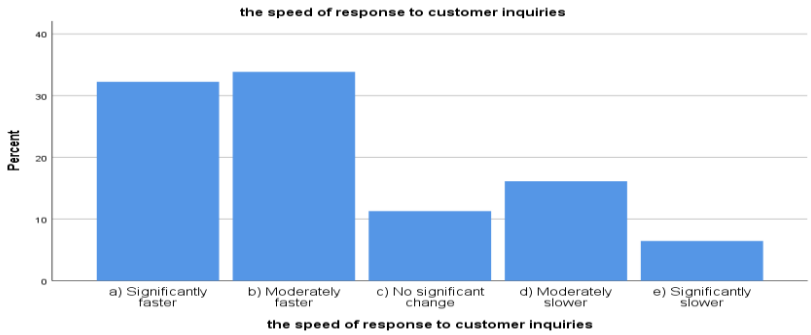


TABLE 2: What percentage of your company's budget is allocated to AI-related initiatives and technologies?

company's budget is allocated to AI					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) Less than 5%	15	24.2	24.2	24.2
	b) 5-10%	18	29.0	29.0	53.2
	c) 11-20%	20	32.3	32.3	85.5
	d) More than 20%	9	14.5	14.5	100.0
	Total	62	100.0	100.0	

(Source: Primary Data)

CHART 2:

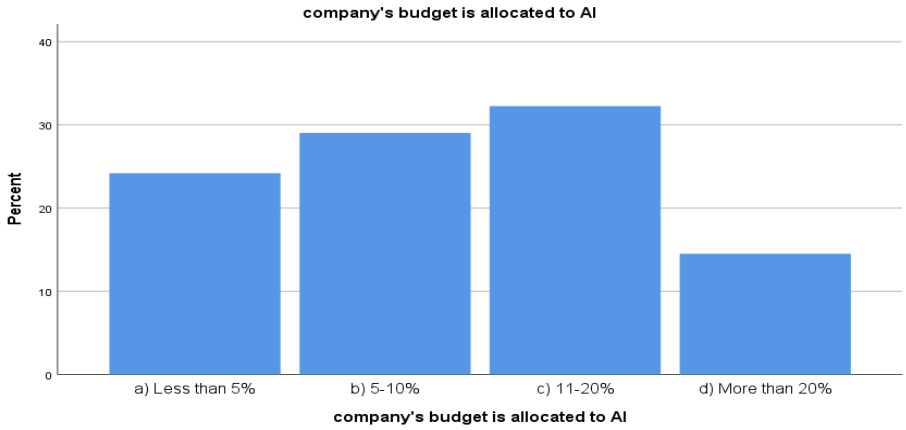


TABLE 3: How has AI implementation affected employee satisfaction and morale within your organization?

employee satisfaction					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) Improved significantly	17	27.4	27.4	27.4
	b) Improved moderately	18	29.0	29.0	56.5
	c) No significant change	13	21.0	21.0	77.4
	d) Decreased moderately	10	16.1	16.1	93.5
	e) Decreased significantly	4	6.5	6.5	100.0
	Total	62	100.0	100.0	

(Source: Primary Data)

CHART 3:

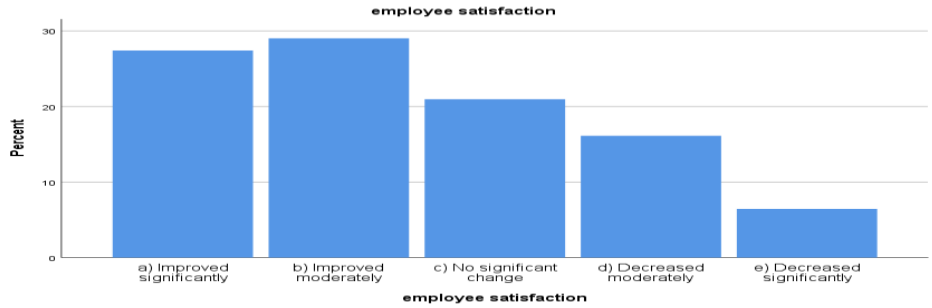


TABLE 4: What proportion of customer interactions are now handled by AI-powered chat bots or virtual assistants?

customer interactions by AI					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) 0-25%	12	19.4	19.4	19.4
	b) 26-50%	28	45.2	45.2	64.5
	c) 51-75%	15	24.2	24.2	88.7
	d) 76-100%	7	11.3	11.3	100.0
	Total	62	100.0	100.0	

(Source: Primary Data)

CHART 4:

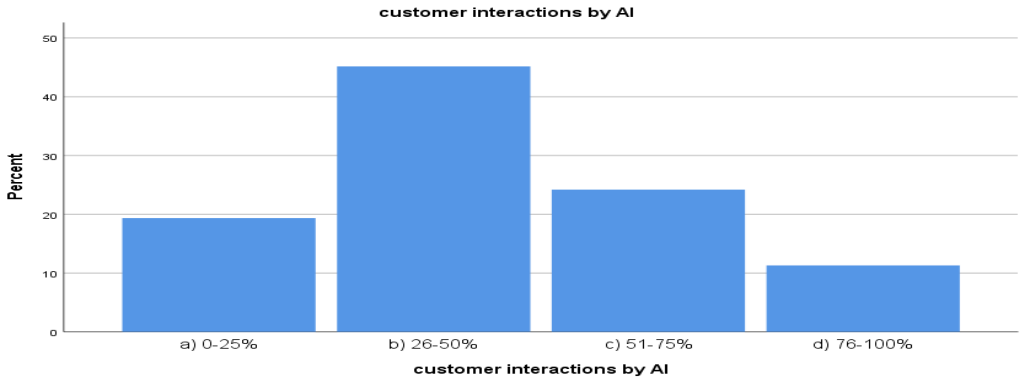


TABLE 5: How has AI implementation affected revenue growth within your organization?

revenue growth					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) Increased significantly	14	22.6	22.6	22.6
	b) Increased moderately	23	37.1	37.1	59.7
	c) No significant change	11	17.7	17.7	77.4
	d) Decreased moderately	11	17.7	17.7	95.2
	e) Decreased significantly	3	4.8	4.8	100.0
	Total	62	100.0	100.0	

(Source: Primary Data)

CHART 5:

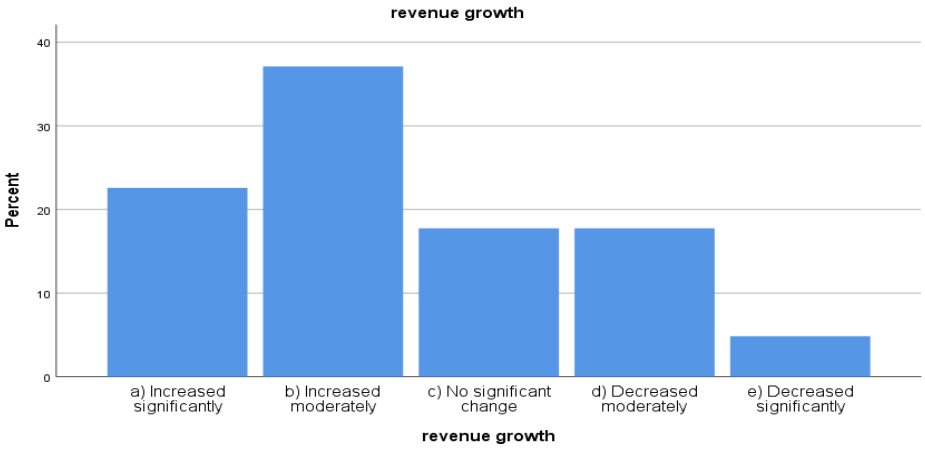


TABLE 6: What proportion of strategic decisions within your organization are now guided or influenced by AI-driven analytic?

strategic decisions influenced by AI					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) 0-25%	15	24.2	24.2	24.2
	b) 26-50%	24	38.7	38.7	62.9
	c) 51-75%	15	24.2	24.2	87.1

	d) 76-100%	8	12.9	12.9	100.0
	Total	62	100.0	100.0	

(Source: Primary Data)

CHART 6:

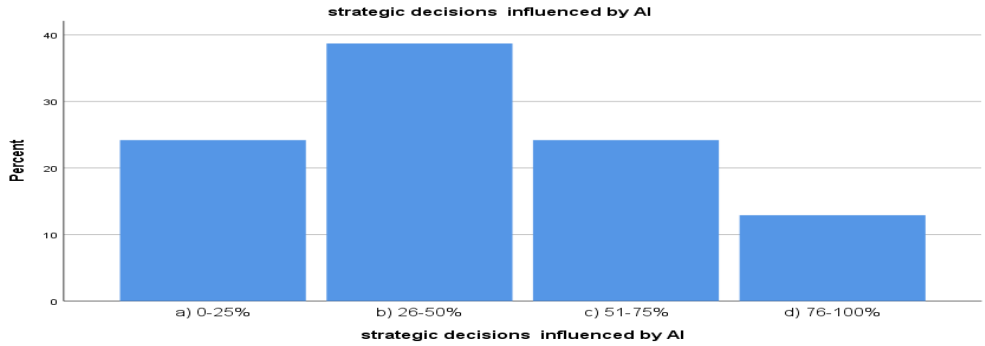


TABLE 7: How has AI implementation affected the time-to-market for new products or services?

Time-to-market for new products or services					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) Decreased significantly	12	19.4	19.4	19.4
	b) Decreased moderately	16	25.8	25.8	45.2
	c) No significant change	14	22.6	22.6	67.7
	d) Increased moderately	15	24.2	24.2	91.9
	e) Increased significantly	5	8.1	8.1	100.0
	Total	62	100.0	100.0	

(Source: Primary Data)

CHART 7:

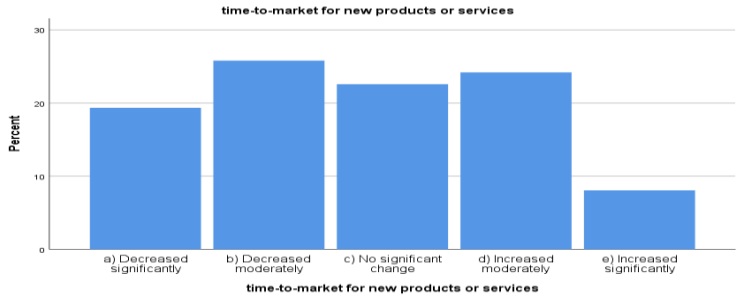


TABLE 8: How has AI implementation impacted the accuracy of demand forecasting within your organization?

Accuracy of demand forecasting					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) Increased significantly	10	16.1	16.1	16.1
	b) Increased moderately	21	33.9	33.9	50.0
	c) No significant change	15	24.2	24.2	74.2
	d) Decreased moderately	9	14.5	14.5	88.7

	e) Decreased significantly	7	11.3	11.3	100.0
	Total	62	100.0	100.0	

(Source: Primary Data)

CHART 8:

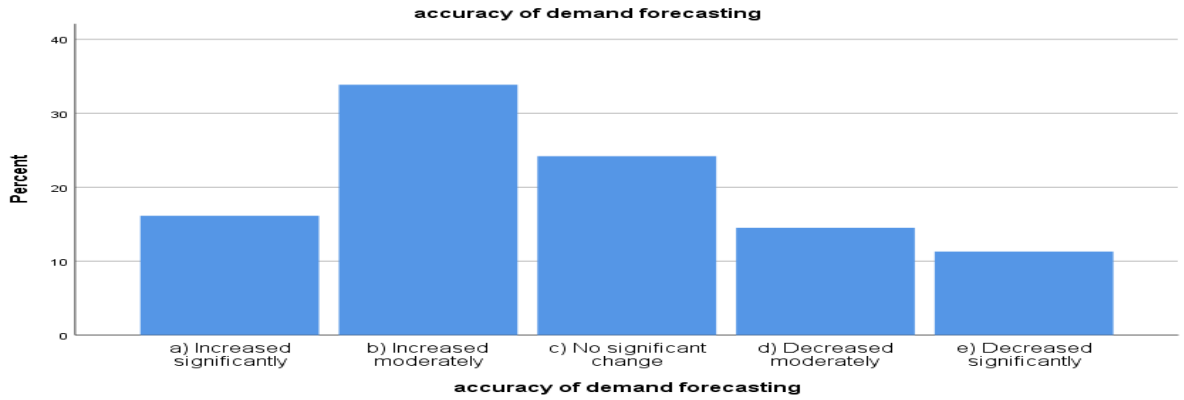


TABLE 9: What proportion of your competitors do you believe have also implemented AI in their business operations?

Competitors using AI					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) None	8	12.9	12.9	12.9
	b) Few	20	32.3	32.3	45.2
	c) Some	14	22.6	22.6	67.7
	d) Many	13	21.0	21.0	88.7
	e) Most	7	11.3	11.3	100.0
	Total	62	100.0	100.0	

(Source: Primary Data)

CHART 9:

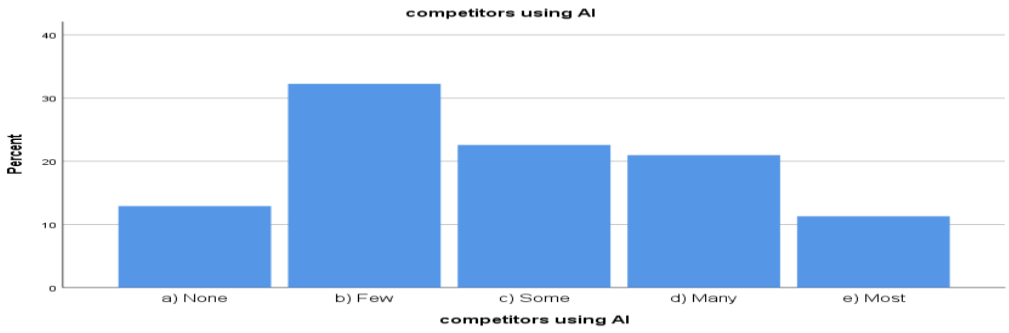
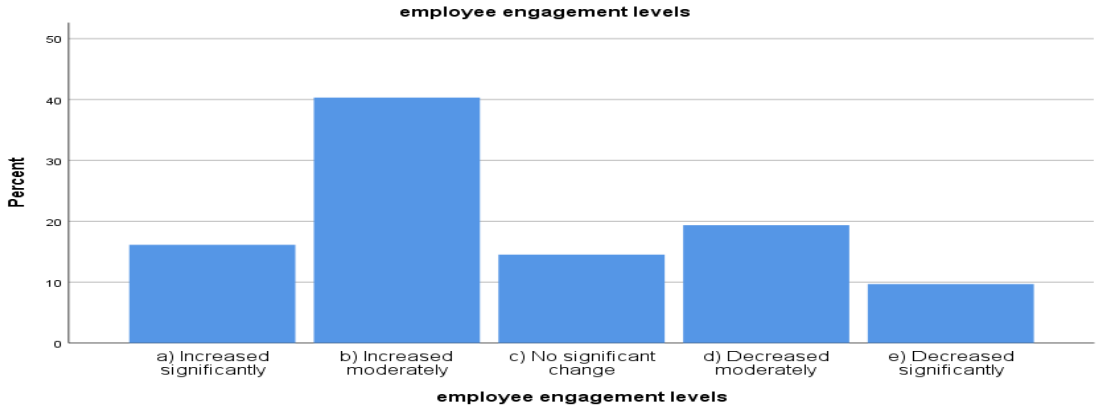


TABLE 10: How has AI implementation influenced employee satisfaction and engagement levels?

Employee engagement levels					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) Increased significantly	10	16.1	16.1	16.1
	b) Increased moderately	25	40.3	40.3	56.5
	c) No significant change	9	14.5	14.5	71.0
	d) Decreased moderately	12	19.4	19.4	90.3
	e) Decreased significantly	6	9.7	9.7	100.0
	Total	62	100.0	100.0	

(Source: Primary Data)

CHART 10:



Descriptive Statistics Using Spss

Gender					
		Frequency	Percent	Vali Percent	Cumulative Percent
Valid	Female	24	38.1	38.1	38.1
	Gender	1	1.6	1.6	39.7
	Male	38	60.3	60.3	100.0
	Total	63	100.0	100.0	

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25-34	18	28.6	28.6	28.6
	35-44	11	17.5	17.5	46.0
	45-54	5	7.9	7.9	54.0
	55 or above	1	1.6	1.6	55.6
	Age	1	1.6	1.6	57.1
	Under 25	27	42.9	42.9	100.0
	Total	63	100.0	100.0	

AI implementation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) Significantly faster	20	31.7	31.7	31.7
	b) Moderately faster	21	33.3	33.3	65.1
	c) No significant change	7	11.1	11.1	76.2
	d) Moderately slower	10	15.9	15.9	92.1
	e) Significantly slower	4	6.3	6.3	98.4
	How has AI implementation impacted the speed of response to customer inquiries or requests?	1	1.6	1.6	100.0
	Total	63	100.0	100.0	

AI related initiatives					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) Less than 5%	15	23.8	23.8	23.8
	b) 5-10%	18	28.6	28.6	52.4
	c) 11-20%	20	31.7	31.7	84.1
	d) More than 20%	9	14.3	14.3	98.4
	What percentage of your company's budget is allocated to AI-related initiatives and technologies?	1	1.6	1.6	100.0
	Total	63	100.0	100.0	

Strategic Decision					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) 0-25%	15	23.8	23.8	23.8
	b) 26-50%	24	38.1	38.1	61.9
	c) 51-75%	15	23.8	23.8	85.7
	d) 76-100%	8	12.7	12.7	98.4
	What proportion of strategic decisions within your organization are now guided or influenced by AI-driven analytics?	1	1.6	1.6	100.0
	Total	63	100.0	100.0	

New productor services					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) Decreased significantly	12	19.0	19.0	19.0

	b) Decreased moderately	16	25.4	25.4	44.4
	c) No significant change	14	22.2	22.2	66.7
	d) Increased moderately	15	23.8	23.8	90.5
	e) Increased significantly	5	7.9	7.9	98.4
	How has AI implementation affected the time-to-market for new products or services?	1	1.6	1.6	100.0
	Total	63	100.0	100.0	

Customer Queries					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) 0-25%	11	17.5	17.5	17.5
	b) 26-50%	23	36.5	36.5	54.0
	c) 51-75%	21	33.3	33.3	87.3
	d) 76-100%	7	11.1	11.1	98.4
	What percentage of customer queries or support tickets are now handled automatically through AI-powered systems?	1	1.6	1.6	100.0
	Total	63	100.0	100.0	

Demand Forecasting					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) Increased significantly	10	15.9	15.9	15.9
	b) Increased moderately	21	33.3	33.3	49.2
	c) No significant change	15	23.8	23.8	73.0
	d) Decreased moderately	9	14.3	14.3	87.3
	e) Decreased significantly	7	11.1	11.1	98.4
	How has AI implementation impacted the accuracy of demand forecasting within your organization?	1	1.6	1.6	100.0
	Total	63	100.0	100.0	

Business Operation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	a) None	8	12.7	12.7	12.7
	b) Few	20	31.7	31.7	44.4
	c) Some	14	22.2	22.2	66.7
	d) Many	13	20.6	20.6	87.3
	e) Most	7	11.1	11.1	98.4
	What proportion of your competitors do you believe have also implemented AI in their business operations?	1	1.6	1.6	100.0
	Total	63	100.0	100.0	

CHI SQUARE TEST
HYPOTHESIS:

H0: There is no significance difference between factors affecting AI and factors affecting AI in the Business Management.

H1: There is a significance difference between factors affecting AI and factors affecting AI in the Business Management.

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender * AIimplementation	63	100.0%	0	0.0%	63	100.0%

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	64.082[a]	10	.000
Likelihood Ratio	11.349	10	.331
N of Valid Cases	63		
a. 13 cells (72.2%) have expected count less than 5. The minimum expected count is .02.			

FINDINGS:
1.The speed of response to customer inquiries or requests-Moderately faster (33.9%) respondents
2.company's budget is allocated to AI-related initiatives and technologies-(32.3%) respondents 11-20% budget is allocated to AI-related technology.
3.AI implementation affected employee satisfaction and morale within your organization-Improved moderately (29.0%) respondents.
4.customer interactions are now handled by AI-powered chat bots or virtual assistants-(45.2%) respondents 26-50% customer interaction handled by AI.

5.AI implementation affected revenue growth within your organization-Increased moderately (37.1%) respondents.
6.strategic decisions within your organization are now guided or influenced by AI-driven analytic -(38.7%) respondents
26-50% strategic decision-making influence by AI.
7.AI implementation affected the time-to-market for new products or services-Decreased moderately (25.8%) respondents.
8.AI implementation impacted the accuracy of demand forecasting within your organization-Increased moderately (33.9%) respondents.
9.competitors do you believe have also implemented AI in their business operations-Few (33.3%) respondents.
10.AI implementation influenced employee satisfaction and engagement levels-Increased moderately (40.3%) respondents.
11.errors or inefficiencies in business processes have been reduced due to AI implementation-(41.9%) respondents that (26-50%) error or inefficiencies reduced by AI.
12.AI impacted the scalability of your business operations- Improved significantly (29.0%) and improved moderately (29.0%) respondents.

Suggestions:
To propel business success, it's crucial to invest wisely in AI technologies. Allocating a significant portion of the budget (11-20%) ensures staying at the forefront of innovation. Transparent communication and comprehensive training programs are key to boosting employee morale amidst AI integration, fostering a culture of understanding and adaptability. Enhancing customer interactions through finely-tuned AI chat bots cultivates loyalty and satisfaction, driving revenue growth through targeted marketing and accurate sales forecasting. Leveraging AI-driven analytics empowers data-informed strategic decision-making, maintaining a competitive edge and optimizing business outcomes. By streamlining processes with AI automation, businesses can accelerate time-to-market for new products and services, meeting customer demands efficiently. Furthermore, improving demand forecasting accuracy with AI tools enables better inventory management, enhancing resource allocation. Staying vigilant in monitoring competitors' AI adoption ensures staying ahead of industry trends and fostering innovation. Engaging employees in AI initiatives and recognizing their contributions fosters a culture of collaboration and innovation. Prioritizing AI solutions that target error reduction and process inefficiencies boosts operational efficiency, while leveraging AI for scalable business operations ensures adaptability and sustainable growth.

3. Conclusion:

The application of artificial intelligence can boost an organization's productivity because it can help employees work effectively, save time, improve operational efficiencies, analyse massive volumes of data quickly, provide wise counsel and support when needed, and make decisions more quickly. The advantages that organizations can gain from using AI are limitless and include automating processes, better results and increased revenue from marketing efforts, a better understanding of customers and a better experience of services provided, fraud detection customers improved service, and increased reliability. Strategic planning, product creation, marketing, finance and accounting, as well as customer care are just a few of the crucial business operations jobs that artificial intelligence has the ability to assist enterprises with. The creation of a plan for using AI to achieve business objectives and a comprehensive AI strategy is an essential first step for business leaders looking to deploy more artificial intelligence within their organizations.

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