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EDITORIAL

We feel honoured and privileged to present the Bi-Annual Peer Reviewed Refereed Journal, ISSN (Online): 2583-5203, Volume 4, No. 01, June, 2025 among our esteemed readers and academic fraternity.

This Journal is the outcome of the contributions of insightful research-oriented papers/articles by various eminent academicians, and research scholars in a highly organized and lucid manner with a clear and detailed analysis related to the emerging areas in the fields of Social Sciences and Allied Areas.

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We also express our sincere thanks and gratitude to all the contributors to research papers/ articles who have taken pain in preparing manuscripts, incorporating reviewer(s) valuable suggestions and cooperating with uxs in every possible way.

We also express our heartfelt gratitude to all the esteemed members of the Editorial Board, Esteemed Reviewer(s) who despite their busy schedules have given their valuable time, suggestions and comments to enrich the quality of the contributory resears paper(s) in bringing to light this June issue.

Last, but not least, we revere the patronage and moral support extended by our parents and family members whose constant encouragement and cooperation made it possible for us to complete on time.

We would highly appreciate and look forward to your valuable suggestions, comments and feedback at **editorbr2022@gmail.com**

June, 2025
West Bengal, India

PEMA LAMA
Editor-in-Chief

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RESEARCH ARTICLE

AI Integration as a Key Driver for Post-Merger Synergies in Indian Chemical Industries

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ABSTRACT

The research examined the Indian chemical sector to discover evidence that AI application leads to post-merger synergy. The goals of research are to enhance operations, find innovative ways to save money, and uncover novel ideas. Chemical merging problems may be amenable to artificial intelligence. The complexity of the assignment and the current rules are causes for concern. The purpose of the research is to learn how AI influences the efficiency and cost of post-merger operations.

Management and employees of integrated chemical firms will have their responses collected quantitatively using standard questionnaires. Finding AI integration expertise is guaranteed using snowball sampling. The combination improved operating efficiency and decreased expenses, according to statistical research. In general, AI has not significantly influenced innovation. Although AI has a significant impact on post-merger synergy, its effects on innovation and smaller businesses in the long run remain unclear. The conclusion confirms what was already suspected: AI significantly enhances synergy.

1 BACKGROUND

As many industries swiftly update their business procedures, mergers and acquisitions are being influenced by artificial intelligence (AI). The impact is enormous due to the fact that AI influences AI. Artificial intelligence (AI) tools including data analytics, machine learning, and natural language processing are used to optimise merger and acquisition processes. Artificial intelligence studies make use of all these tools. These technological advancements are used by more people. Due diligence has been sped up, mistakes have been reduced, and decision-making has been improved thanks to technology (Darioshi, & Lahav, 2021). With the use of AI, companies can efficiently and trustfully sift through massive volumes of data, find synergies, and improve their post-merger integration plan. This skill set was developed by AI. Industrial and technological synergies following a merger are driven by AI. This is accomplished through the use of predictive analytics to automate processes, improve supply chain management, and encourage innovation. Operations, expenses, and the generation of new ideas can all be enhanced through collaboration. The use of AI in M&A strategies is on the rise. The power of its revolution is crucial. Merger complexity can be better managed with the help of AI. Companies can better manage complexity in this way. Streamline processes, achieve flawless integration, and enhance value output with these solutions (Aldoseri, Al-Khalifa, & Hamouda, 2023). In manufacturing, AI is used. These businesses began to expand. This industry boosts productivity with AI by optimising maintenance plans, minimising downtime, and forecasting equipment breakdown. All of these boost productivity. AI-powered analytics can quickly detect and reduce technology sector risks, match strategy objectives, and ease mergers and acquisitions. These results can aid long-term planning.

Relevance to Indian Chemical Industries

It is imperative that the chemical sector maintains its high levels of employment, exports, and gross domestic product (GDP) in order for India's economy to flourish. This sector includes the pharmaceutical industry, as well as the petrochemical industry, the agrochemical industry, and the speciality chemical industry. As an expansive and varied company, it is active in a number of different subsectors. However, the sector is confronted with a great deal of difficulties when it comes to the integration of mergers. Integrating multiple cultures into one firm is difficult. Additional challenges include efficient industrial operations, tight environmental regulations, and complex supply network management (Gawusu *et al.*, 2022).

The Indian chemical industry is notoriously tough to integrate. Being competitive requires addressing operational difficulties, stimulating innovation, and synchronising systems and procedures. Botelho et al. (2021) argue that changing market conditions, strict legislation, and the need for innovation to meet client expectations are making things harder. AI-enabled process automation, predictive analytics, and data management may tackle these issues. Supply networks are built, streamlined, and secured by AI. AI optimises industrial operations, resource allocation, and market trends utilising massive data. It may boost growth and streamline mergers.

2 LITERATURE REVIEW

AI Applications in Mergers and Acquisitions (M&A)

AI helps mergers and acquisitions make better judgments, complete procedures faster, and add value. Intelligent systems are needed to optimise worldwide M&A deals. This is accomplished by finding synergies, automating repetitive activities, and improving data accuracy. Various types of large data sets can be analysed by artificial intelligence (University of Wolverhampton, 2022). This enables it to evaluate the strategic fit of target organisations, identify potential risks, and forecast their performance.

The use of machine learning algorithms allows AI to perform due diligence in M&A deals. Just one instance comes to mind. Due diligence may necessitate the manual examination of extensive financial data, contracts, and compliance documents. It adheres to all of the standard protocols for mergers and acquisitions. Natural language processing and machine learning can drastically reduce the time and money needed for this method. Automated retrieval and evaluation of critical document data is achieved by these technologies.

Examples

When Bayer bought Monsanto in 2018, they used analytics powered by artificial intelligence to find out how well the two companies would work together, find areas of synergy, and mitigate integration risks (Bayer, 2018). Case in point: Bayer's acquisition of Monsanto. Monsanto was acquired by Bayer in 2018. As per Hossain (2021), the chemical sector in India is beginning to acknowledge AI for its ability to expedite mergers and acquisitions. This is because the industry uses AI. This was demonstrated by the merging of Grasim Industries and Aditya Birla Chemicals in 2015 (Aditya Birla Group, 2016).

The merger enhanced post-merger integration, streamlined supply chains, and consolidated multiple IT systems. AI improved inventory management, production schedules, and customer communication at the new startup Grasim Chemicals. The IIM Centre for Deals, McKinsey, and Deloitte performed market research for these transactions. Organisations disseminated reports. This study examines AI methodologies and their impacts on operational efficiency, market share, and cost reduction.

AI's Contribution to Post-Merger Synergies

Chemical corporations' post-merger integration is being transformed by AI. Alien technology allows it. AI excels at automating repetitive tasks. HR may concentrate on strategic decisions. AI algorithms can streamline production scheduling, inventory management, and supply chain logistics. Merging businesses can use AI to better anticipate market trends, plan production, and identify problems in the supply chain. Using machine learning, businesses may enhance

their demand forecasting, downtime prediction, and waste minimisation efforts (BMS, 2021). All of these things are aimed at increasing profits while decreasing expenses. Chemical firms can benefit from AI-enabled analytics by discovering and capitalising on new opportunities. Artificial intelligence can filter through massive statistics related to R&D, market trends, and customer interaction to direct strategic investments and product development. Analysing these databases can lead to the discovery of new information.

In 2020, BASF acquired the polyamide division of Solvay. Through the acquisition, the company was able to fortify its worldwide supply chain, increase its R&D spending, and speed up product production in fast-growing regions. This was made possible with the help of AI. As per Alexandre, & Blanckaert (2020), in their merger, PwC and BCG discovered that AI boosts innovation while cutting operational expenses. Both firms investigated the matter. Collaborators conducted the study. Their research indicates that AI might cut costs by 30%. Productivity and decision-making are both enhanced by automating repetitive tasks. Computer programs can do this. Chemical firms can learn from AI-enabled cost, market, and innovation synergies. These firms may profit from AI. According to Al Bustami (2020), Indian chemical companies may need to improve operations, post-merger integration, regulatory compliance, innovation, and growth sustainability. Ask AI for help. It wants long-term growth. Developing businesses will need AI for M&As and long-term competitiveness. Industrial competitiveness is declining, thus this will happen.

3 RESEARCH OBJECTIVES

The research objectives of the study are as follows –

- To explore the impact of AI on post-merger synergies in the Indian chemical industry.
- To evaluate how AI influences operational efficiency, cost reduction, and innovation post-merger

4 RESEARCH QUESTIONS

How does AI integration impact post-merger operational efficiency in Indian chemical industries?

What is the role of AI in cost reduction and improving innovation in post-merger scenarios?

What challenges are faced by Indian chemical industries during AI integration after mergers?

5 RESEARCH METHODOLOGY

Research Design

The study's primary data were collected through standardised questionnaires and quantitative methods. The objective of this assignment is to collect data for the analysis. The purpose of this research is to illuminate the function of AI in the post-merger synergy of India's chemical sector. The people being studied here are managers and employees of chemical companies in India that have recently adopted and used AI technology. The organised questionnaire evaluates the merger and its impact on innovation, cost savings, and operational performance, among other critical parameters. This initiative aims to gather empirical proof of how AI promotes merger-related integration and synergy.

Data Collection

A structured questionnaire is utilised for data collection. This poll is only intended to gather data on the results of integrating AI following the merger. Keep in mind that the poll compares operational efficiency, cost savings, and innovation levels before and after the merger. It employs online surveys to get 100 responses. This ensures that the sample accurately reflects the diversity of the population as a whole. By utilising closed-ended questions, the poll zeroes in on AI and the post-merger performance of companies. Using Likert scales, these questions quantify people's thoughts and experiences (Alismail & Zhang, 2020). Questions are employed for data collection. People can collect consistent and comparable data from many responders using this strategy. The identity of the respondent is kept secure.

Sampling

This study used a snowball sampling technique, which is great for finding a subset of people who are good at integrating AI after a merger, to make sure the sample was representative. Only a small fraction of the

entire sample size is composed by initial respondents in snowball sampling; these individuals are usually AI implementers in the chemical business. By asking respondents to recommend other qualified individuals, the sample expands naturally to include experts from across the organisation. Experts in AI integration are an example of a hard-to-sample speciality that can benefit from this method. Included in the sample are individuals from various departments such as R&D, operations, supply chain management, senior management, and frontline employees.

According to Wong and Ngai (2022), this initiative has the potential to reveal how artificial intelligence impacts synergy following a merger. This will be accomplished by gathering information from various sources. Finding and contacting trained field volunteers is a breeze with the help of snowball sampling. The inclusion of individuals with relevant and practical knowledge in the sample is crucial for the application of the findings to AI-driven post-merger synergies. Researchers can get more comprehensive and trustworthy data with this strategy since it uses participant networks to combine multiple perspectives.

Methodology used

This research utilises SPSS for data analysis. The collected primary data will be used for statistical analysis. It is possible to compare the operational efficiency, cost savings, and innovation before and after the merger by determining the standard deviation and mean. To determine if there were statistically significant changes in performance as a result of the merger, a paired t-test compares performance indicators before and after AI integration. This establishes whether the merger substantially reduced performance. In order to determine whether the merger had any impact on performance. It uses correlation analysis to find out how AI improves operational efficiency, saves money, and innovations.

6 DATA ANALYSIS

The following is a statistical analysis of the data it gathered about AI integration. After mergers in India's chemical industry, this study was undertaken to improve their synergy. Using correlation analysis, paired t-tests, and descriptive statistics, determine how AI affects innovation, savings, and productivity. This chapter contains all the necessary information.

A. Descriptive Statistics

This chapter begins with a brief overview of descriptive statistics. The mean, standard deviation, and coefficient of variation are three crucial statistics that assist us in understanding the distribution of the relevant data. From the beginning of the merger process until its conclusion, everyone was committed to cutting expenses and maximising output.

The formula for the Coefficient of Variation -

$$CV\ (\%) = \left(\frac{Standard\ deviation}{Mean}\right) \times 100$$

Table 1
DESCRIPTIVE STATISTICS

Variable	Mean	Standard Deviation	Coefficient of Variation
Pre-Merger Operational Efficiency	1.88	0.594	31.6%
Post-Merger Operational Efficiency	3.98	0.582	14.6%
Pre-Merger Cost Savings	1.73	0.653	37.7%
Post-Merger Cost Savings	4.07	0.653	16.0%

Analysis

Operational Efficiency: The average operating efficiency increased significantly to 3.98 following the merger, representing a substantial improvement from 1.88 before the merger. With a decrease from 3.16 per cent to 14.6 per cent, the coefficient of variation clearly showed that all respondents consistently noticed an improvement in operational efficiency.

- *Cost Savings:* Savings also increased, going from 1.73 before the merger to 4.07 after it. With a decreased post-merger coefficient of variation of 16.0%, it is clear that AI integration typically follows cost reduction.

B. Paired t-Test

Operating efficiency and cost savings performance indicators were compared before and after the merger using a paired t-test.

- *Null Hypothesis (H_0):* AI integration does not significantly impact post-merger synergies.
- *Alternative Hypothesis (H_1):* AI integration significantly impacts post-merger synergies.

The test statistics for the paired t-test -

$$t = \frac{\sum d}{\sqrt{\frac{n(\sum d^2) - (\sum d)^2}{n-1}}}$$

Where, d: difference per paired value, n: number of samples

Table 2
PAIRED T-TEST

Variable Pair	Mean Difference	t-Value	p-value
Pre-Merger vs Post-Merger Operational Efficiency	-2.10	-28.943	< 0.001
Pre-Merger vs Post-Merger Cost Savings	-2.34	-26.542	< 0.001

Analysis

- *Operational Efficiency:* The t-test results show a significant improvement in operational efficiency after AI integration, with a t-value of -28.943 and a p-value < 0.001. The large negative mean difference (-2.10) indicates a substantial increase in efficiency.
- *Cost Savings:* Similarly, the cost savings showed a significant improvement post-merger, with a t-value of -26.542 and a p-value < 0.001. The mean difference of -2.34 reflects notable cost savings following AI adoption.

Figure 1
SPSS OUTPUT FOR PAIRED T-TEST

Paired Samples Test

		Paired Differences			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence ... Lower
Pair 1	How would you rate your company's operational efficiency before the merger? - How would you rate your company's operational efficiency after the merger and AI integration?	-2.103	.752	.073	-2.247
Pair 2	How would you rate the cost savings achieved pre-merger? - How would you rate the cost savings achieved post-merger with AI integration?	-2.336	.911	.088	-2.511

Paired Samples Test

		Paired ... 95% Confidence Interval of the ... Upper	t	df	Sig. (2-tailed)
Pair 1	How would you rate your company's operational efficiency before the merger? - How would you rate your company's operational efficiency after the merger and AI integration?	-1.959	-28.943	106	.000
Pair 2	How would you rate the cost savings achieved pre-merger? - How would you rate the cost savings achieved post-merger with AI integration?	-2.162	-26.542	106	.000

Source: Researcher's Own Calculation

Interpretation

Since both p-values are below the 0.05 threshold, it rejects the null hypothesis (H0) and accepts the alternative hypothesis (H1), confirming that AI integration significantly enhances operational efficiency and cost savings post-merger.

C. Correlation Analysis

Correlation analysis was conducted to investigate the relationship between AI integration and post-merger performance factors, such as operational efficiency and cost savings.

Pearson Correlation Coefficient (r) -

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2 - (\Sigma x)^2][n\Sigma y^2 - (\Sigma y)^2]}}$$

Where, X and Y are two variables (e.g., AI contribution to innovation and operational efficiency) and n = number of paired observations

Table 3
CORRELATION

Variable Pair	Pearson Correlation (r)	p-value
AI Contribution to Innovation & Post-Merger Operational Efficiency	-0.132	0.175
AI Contribution to Innovation & Post-Merger Cost Savings	-0.070	0.471
Post-Merger Operational Efficiency & Post-Merger Cost Savings	0.068	0.485

Analysis

AI Contribution to Innovation & Operational Efficiency: The correlation between AI-driven innovation and operational efficiency was weakly negative (r = -0.132), and the result was not statistically significant (p = 0.175).

AI Contribution to Innovation & Cost Savings: A similarly weak negative correlation (r = -0.070) was observed between innovation and cost savings, with a non-significant p-value of 0.471.

Operational Efficiency & Cost Savings (Post-Merger): The correlation between operational efficiency and cost savings post-merger was weakly positive (r = 0.068) but not statistically significant (p = 0.485).

Figure 2
SPSS OUTPUT FOR CORRELATION

Correlations

		To what extent has AI contributed to the innovation process in your company after the merger?	How would you rate your company's operational efficiency after the merger and AI integration?	How would you rate the cost savings achieved post-merger with AI integration?
To what extent has AI contributed to the innovation process in your company after the merger?	Pearson Correlation	1	-.132	-.070
	Sig. (2-tailed)		.175	.471
	Sum of Squares and Cross-products	56.991	-5.981	-4.065
	Covariance	.538	-.056	-.038
	N	107	107	107
How would you rate your company's operational efficiency after the merger and AI integration?	Pearson Correlation	-.132	1	.068
	Sig. (2-tailed)	.175		.485
	Sum of Squares and Cross-products	-5.981	35.963	3.131
	Covariance	-.056	.339	.030
	N	107	107	107
How would you rate the cost savings achieved post-merger with AI integration?	Pearson Correlation	-.070	.068	1
	Sig. (2-tailed)	.471	.485	
	Sum of Squares and Cross-products	-4.065	3.131	58.542
	Covariance	-.038	.030	.552
	N	107	107	107

Source: Researcher's Own Calculation

Interpretation

Although integrating AI improves operational efficiency and saves money, the correlation analysis shows that AI-driven innovation is only weakly associated with significant performance measures. The success of the merger may be impacted by other factors, as indicated by this.

D. Statistical Interpretation

For the paired t-test, every single test was found to have a significance level of 0.05. It can reject the null hypothesis and say that AI integration greatly boosts operational efficiency and cost savings in post-merger situations since the paired t-tests produced p-values that were far lower than this threshold. Other factors may have been more important, given that the correlation analysis did not find any substantial links between AI-driven innovation and operational efficiency and cost savings after the merger.

Extensive statistical research shows that AI greatly improves post-merger synergies, from operational efficiency to cost savings. This is especially the case in the chemical industries of India. Considering the weak correlations between AI innovation and other success metrics, it should be reasonable to investigate how specific AI applications could enhance different parts of integration after a merger.

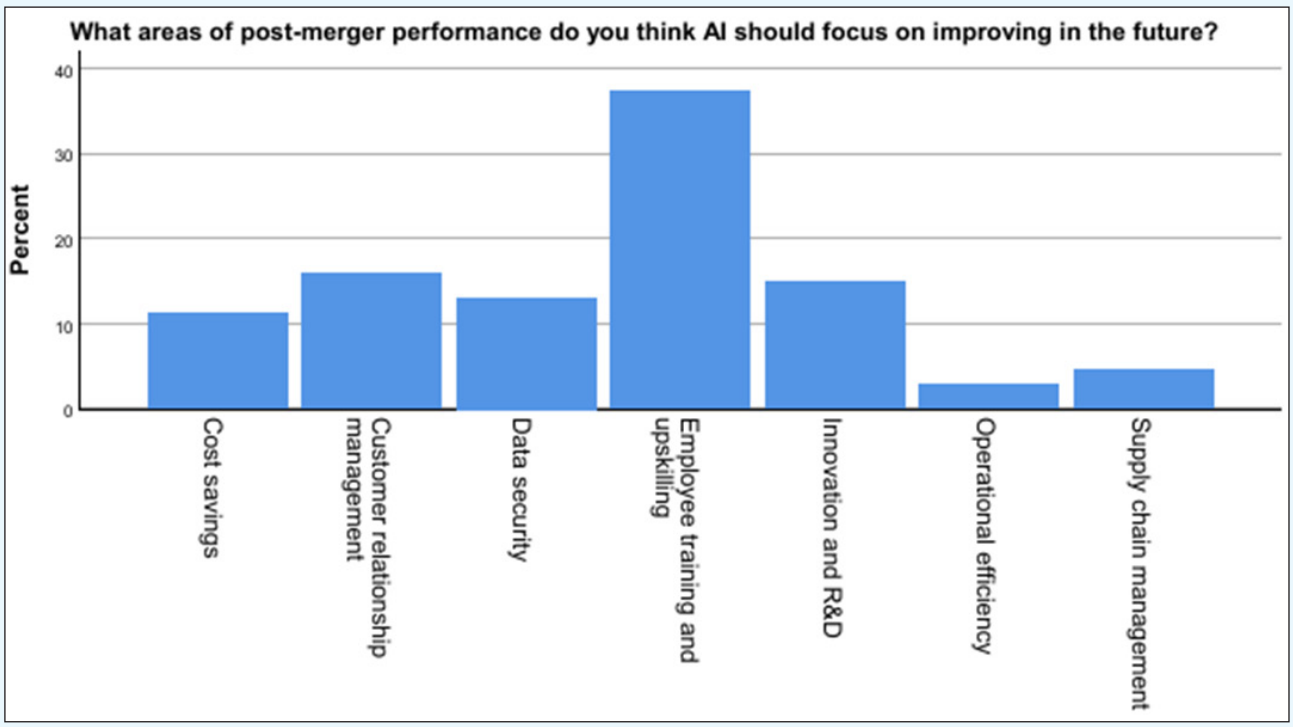
7 FINDINGS AND DISCUSSION

Key Findings

AI-augmented post-merger synergy was statistically assessed in India's chemical industry. The results from this study were substantial. AI system mergers boost productivity, efficiency, and cost. Mean operating efficiency rose 3.98 percentage points, and the coefficient of variance fell from 31.6% to 14.6% when the two enterprises merged. Both changes occur immediately after the merger. The merger caused two modifications. Since all participating businesses reported operational efficiency increases, it must be real. So, the benefits are confirmed. After the merger, the results demonstrated that average cost savings increased from 1.73% to 4.07%, and the coefficient of variance decreased from 377.7% to 16.0%. The two iterations are near carbon copies of the original.

The improvements show that since implementing AI, all responders have experienced a steady and significant drop in expenses. Because of the changes, something has happened. By rejecting the null hypothesis, the paired t-tests demonstrate that these gains are statistically significant. Since the p-values for operational efficiency and cost savings are less than 0.001, it cannot accept the null hypothesis for these variables. Artificial intelligence (AI) leads to a poor correlation between operational efficiency ($r = -0.132$, $p = 0.175$) and cost savings ($r = -0.070$, $p = 0.471$). The correlation analysis backs this up. According to the statistical analysis, neither variable is significantly associated with this association. Even if AI improves these parameters, it may not immediately lead to innovation in this scenario. A further piece of evidence supporting this is the weak positive association ($r = 0.068$, $p = 0.485$) between combined operational efficiency and cost reductions.

Figure 3
WHAT AREAS OF POST-MERGER PERFORMANCE DO YOU THINK AI SHOULD FOCUS ON IMPROVING IN THE FUTURE?



Source: Researcher's Own Calculation

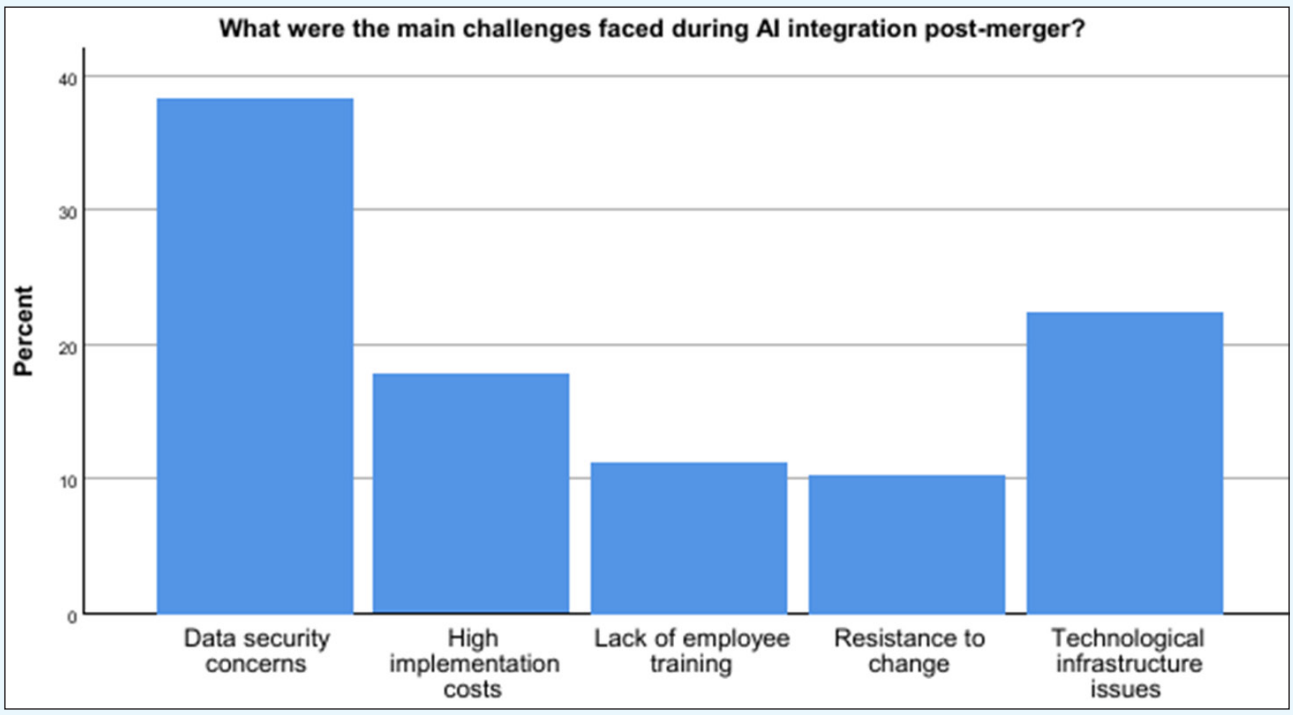
Discussion

The results reveal that the post-merger synergies in India's chemical sector, including operational efficiency and cost savings, have been substantially enhanced by AI systems. Reducing costs and improving operational efficiency are the primary findings. Reducing costs and improving operational efficiency are the primary findings. These synergies were achieved, according to the data, which is a major step forward. The most recent numbers show that these locations are leading the global trend in terms of advancement. Notable developments mirror fads. All of these new advancements show that AI-powered tech can optimise supply chains, make better decisions, and simplify integration after a merger (Shobhana, 2024).

8 INTERPRETATION WITHIN THE CONTEXT OF INDIAN CHEMICAL INDUSTRIES

Mergers and acquisitions have created integration problems in India's chemical industry. Everyone does this. This should be considered by chemical businesses. The industry is impacted by operations, rules, and the dynamics of the market. Things remain as they are. This study shows how AI may boost productivity and cut costs. It must minimise expenditures and enhance operations. This is crucial for cost savings. Supply chain optimisation, predictive analytics, and AI-powered automation drove these gains (PRN, 2022). Demand and supply projections improve with predictive analytics. Inventory rises and operating costs fall. Automation reduces human errors, improving process efficiency. One way is to reduce physical labour.

Figure 4
WHAT WERE THE MAIN CHALLENGES FACED DURING AI INTEGRATION POST-MERGER?



Source: Researcher's Own Calculation

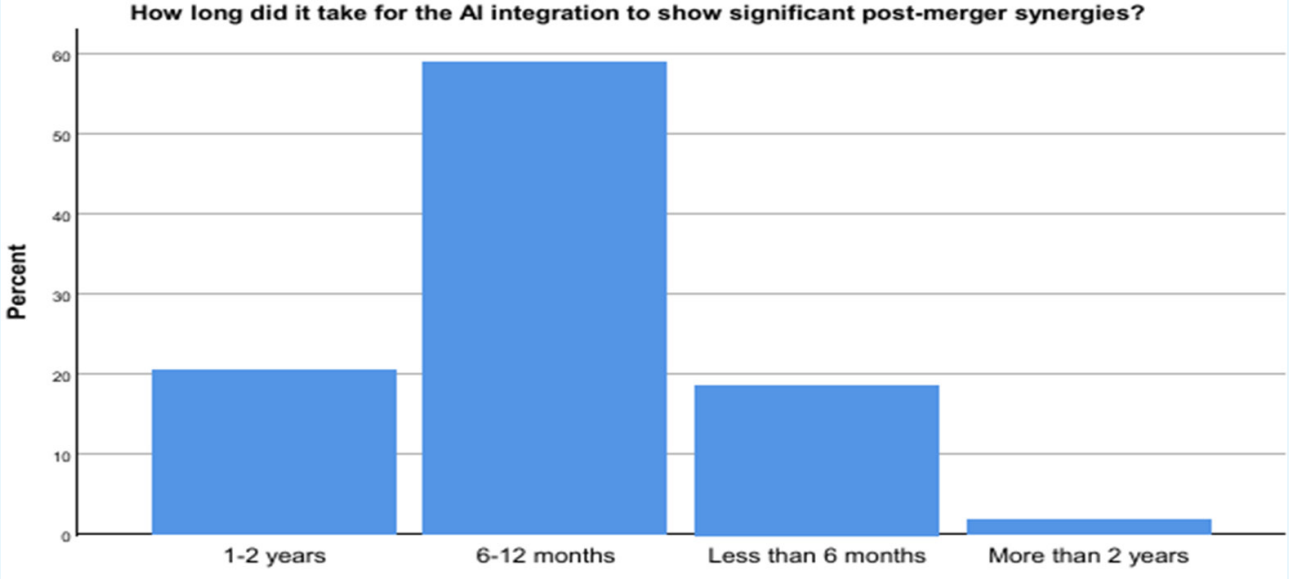
9 COMPARISON WITH EXISTING LITERATURE AND CASE STUDIES

Global case studies demonstrate AI-boosted post-merger performance. A case study confirms. McKinsey (2022) found that deploying AI in a European chemical business following a merger cut operating costs by 25% and increased process efficiency by 30% in two years (McKinsey, 2022). The US merger of two speciality chemical businesses produced similar results. The merger involves two firms. AI analytics cut expenses and sped up production. These examples demonstrate how AI improves post-merger operations. India's weak correlations between AI-driven innovation and operational efficiency and cost savings imply that AI's innovation impact varies by context. AI improves operations, cost, and innovation. The fact that AI may limit creativity is essential. AI's impact on innovation in India's complex and ever-changing business may depend on company culture, legal frameworks, and market readiness.

Synergies Achieved Through AI and Obstacles in the Integration Process

AI boosts merger synergies, research suggests. They save money and operate efficiently. AI manages inventory, supply chain, and downtime. Supplements boost synergy and integration. Both outcomes rely on factors. Data implies AI innovation may be limited. Only operational efficiency and cost reduction can stop AI-driven innovation. Single AI-driven inventions allow this. Many issues can hinder AI implementation. Insufficient data, change aversion, and old infrastructure cause issues (Wan, 2024). AI's effects on India's chemical industry, data security, and technology alarm many. Future issues may differ. These factors may aggravate it. These traits may inhibit merger-induced innovation because AI is essential to long-term organisational goals.

Figure 5
HOW LONG DID IT TAKE FOR THE AI INTEGRATION TO SHOW SIGNIFICANT POST-MERGER SYNERGIES?



Source: Researcher's Own Calculation

10 CONCLUSION AND RECOMMENDATIONS

Conclusion

AI and the Indian chemical industry post-merger synergy were explored in this study. The inquiry assessed this incorporation's impact. Innovation, cost reduction, and operational efficiency were major performance measures. A statistical analysis indicated that AI following a merger improved operational efficiency and cost savings. Organisational mean values improved, and variability decreased. The results of the paired t-test demonstrated significant changes ($p < 0.001$) in the performance measures of the pre-merger and post-merger periods, therefore confirming the conclusions.

The null hypothesis that artificial intelligence does not have an effect on post-merger synergy is rejected by us. A limited number of correlations were found between AI-driven creativity and other performance measures. This was verified via research. Despite the fact that AI has a post-merger integration benefit, it may not have much of an impact on innovation or may need to depend on other variables. Given that it could be affected by other things.

Recommendations

- *Enhance AI Training and Development:* Businesses need thorough AI training to improve internal proficiency. This includes promoting digital transformation and teaching workers AI tools. Both initiatives fit here. Integration may be simplified by working with technology businesses or hiring AI professionals (Chowdhury et al., 2022).
- *Develop a Clear AI Strategy:* An AI strategy that supports organisational goals should influence mergers. The plan should guide. AI road maps should be part of this method. The strategy should include this. Identifying industries where artificial intelligence may increase productivity and reduce costs, and setting success criteria, is also important (Javaid et al., 2022).
- *Overcome Resistance to Change:* Promoting an inclusive culture that highlights AI's benefits to stakeholders and employees can lessen opposition. This campaign could be executed in several ways. Many ways exist to create AI trust and acceptance (Hossain, 2021). Transparency, staff participation in decision-making, and quick AI wins are examples.

- *Address Technical and Cost Challenges:* A solid IT infrastructure, data management standards, and cybersecurity regulations solve technological difficulties for businesses (BMS, 2021). Success is only conceivable then. Only then will they resolve these concerns. Cost reduction is feasible, nevertheless, it is also prudent to prioritise artificial intelligence expenditures based on return on investment, while exploring government funding and strategic partnerships.
- *Policy and Management Recommendations:* Legislatures must consider AI-friendly merger frameworks. Their duty. Financial incentives promote AI research. Another example is resource allocation. This policy also includes tax incentives and academic-corporate cooperation. Team managers must prioritise continual improvement and routinely assess AI's impact to accomplish strategic goals (Johnston & Cushing, 2020). This is necessary to achieve goals.

11 IMPLICATIONS FOR FUTURE RESEARCH

Further research is needed, however, this study implies that AI improves post-merger operational efficiency and costs. Fill in these. In future studies, smaller organisations with fewer resources and experience may use AI. Future studies may address this. Thus, synergies are unlikely. Long-term studies are needed to evaluate how AI affects post-merger performance (Ding *et al.*, 2024). AI's performance impacts are uncertain.

This shows people understand sustainable growth and competitive advantage. Natural language processing and machine learning could be explored for post-merger effects. Investigating the matter is feasible. Offering a different set of choices. Utilising this method would be an example of how versatile AI is.

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