2026 Volume: 02 Issue: 06 www.ijrpa.com ISSN 2456-9995 Review Article

International Journal Research Publication Analysis

Page: 01-09

A STUDY ON IMPACT OF ARTIFICIAL INTELLIGENCE ON FINANCIAL PERFORMANCE INDIAN COMPANIES IN IT SECTOR

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Article Received: 28 April 2026
Article Revised: 18 May 2026
Published on: 08 June 2026

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DOI: https://doi-doi.org/101555/ijrpa.6379

ABSTRACT

This study explores how Artificial Intelligence (AI) influences the financial performance of selected companies in the Indian IT sector. In recent years,AI has become a key technological enabler that improves operational efficiency, supports better managerial decisions, and promotes innovation in business processes. To assess its impact, major financial indicators such as profitability, revenue growth, return on assets, and market performance were analyzed. The study is based on secondary data collected from company reports and financial databases for a defined period, and statistical tools like correlation and regression were employed for analysis. The results reveal that AI adoption is positively associated with financial performance; however, the relationship is not statistically significant for all firms. This indicates that the financial benefits of AI depend largely on factors such as the firm's investment strength, technological preparedness, and strategic use of digital resources. The study therefore suggests that while AI holds strong potential to enhance financial performance over time, its short-term effects differ across companies.

KEYWORDS: *Artificial Intelligence, Market Capitalization, Profitability, AI Adoption.*

INTRODUCTION

Artificial Intelligence (AI)has emerged as one of the most transformative technologies of the twenty-first century, significantly reshaping business models, operational efficiency, and competitive dynamics across industries. The rapid advancement of AI technologies such as machine learning, natural language processing, robotics, and predictive analytics has enabled firms to automate processes, improve decision-making, enhance customer experience,

andoptimize resourceutilization.As aresult,AIisincreasinglybeingviewed not merely as a technological tool but as a strategic asset that influences organizational performance and long-term value creation.

In the Indian context, the Information Technology (IT) sector plays a pivotal role in economicgrowth,exportearnings,employmentgeneration,andtechnologicalinnovation. India'sITindustryhasbeenattheforefrontofdigitaltransformationandisnowwitnessing a paradigm shift driven byAI-led solutions and services. The growing investment inAI infrastructure,increasingdemandforintelligentautomation,andintegrationofAIintocore business operations are expected to redefine the revenue models and profitability of IT companies. Industry experts have identifiedAI as the most significant opportunity for the IT sector, capable of driving future growth and enhancing global competitiveness.

REVIEW OF LITERATURE

Chenetal.(2022)examinedtherelationshipbetweenArtificialIntelligencecapabilityand firm performance using the Resource-Based View (RBV). The study found that AI improves decision-making quality, operational efficiency, and overall organizational performance. Firms with strongAI management and data-driven culture reported higher profitability and sales growth. The research highlights AI as a strategic resource that enhances competitive advantage and long-term financial outcomes.

Kumari et al. (2024) analysed the effect ofAI concentration on the financial performance of U.S. firms using panel data and a fixed-effects model. The results revealed that firms with higher AI adoption achieved better financial performance, particularly when supportedbystrongR&Dinvestment.ThestudyconcludedthatAIaloneisnotsufficient; its financial benefits are maximized when combined with innovation and technological capability.

Amir et al. (2025) investigated the impact of AI investment on firm profitability in the financial and audit sector. Using panel regression techniques, the study found that AI investmentsignificantlyimprovesprofitability,whilecybersecurityrisknegativelyaffects financial performance. The research emphasized the importance of technological infrastructure and regulatory support in realizing financial gains from AI adoption.

Omar et al. (2026) focused on the role of Artificial Intelligence in predicting corporate financial performance in MENA region firms. The study demonstrated that AI-based modelsprovidemore accurateclassificationof high-andlow-performingfirmscompared to traditional financial analysis. This indicates the growing importance ofAI in financial

forecasting, performance evaluation, and strategic decision-making.

Ganuthula and Kuruva (2025) examined AI-era firms in India's knowledge-intensive sectors and found that althoughAI-adopting firms attracted higher funding and valuation, their short-term efficiency and productivity were lower.This suggests thatAI investment initially increases costs and infrastructure requirements before translating into improved financial performance. The study highlights the need for longitudinal analysis to understand long-term financial benefits.

OBJECTIVES

This research is undertaken to investigate how the adoption ofArtificial Intelligence influencesthefinancialperformanceofselectedcompaniesintheIndianITindustry.

HYPOTHESES

- H1.ArtificialIntelligencedoesnothaveastatisticallysignificant impactonthe financial performance of TCS Ltd.
- H2.ArtificialIntelligencedoesnothaveastatisticallysignificantimpactonthe financial performance of Infosys Ltd
- H3.ArtificialIntelligencedoesnothaveastatisticallysignificantimpactonthe financial performance of HCL Technologies Ltd

METHODOLOGY

The study is completely based on secondary data gathered from the official website of Bombay Stock Exchange, Money control, and the Capital Line database.The study spans aEightyearsandincludesfivecompaniesselectedbasedontheirmarketcapitalizationon the Bombay StockExchange.To analyzeimpact ofAIon firm variables likes total assets, Operating Profit, Selling and Administrative Expenses, Net Sale, Market Capitalization, Cash Holding, Book to Market Value and net profit. regression testing, conducted using Gretlsoftware,servesastheprimarystatisticalmethod.DuetolackofdataWiproLtdand LTI Mind tree Ltd was excluded form study.

Table1: Selected Companies.

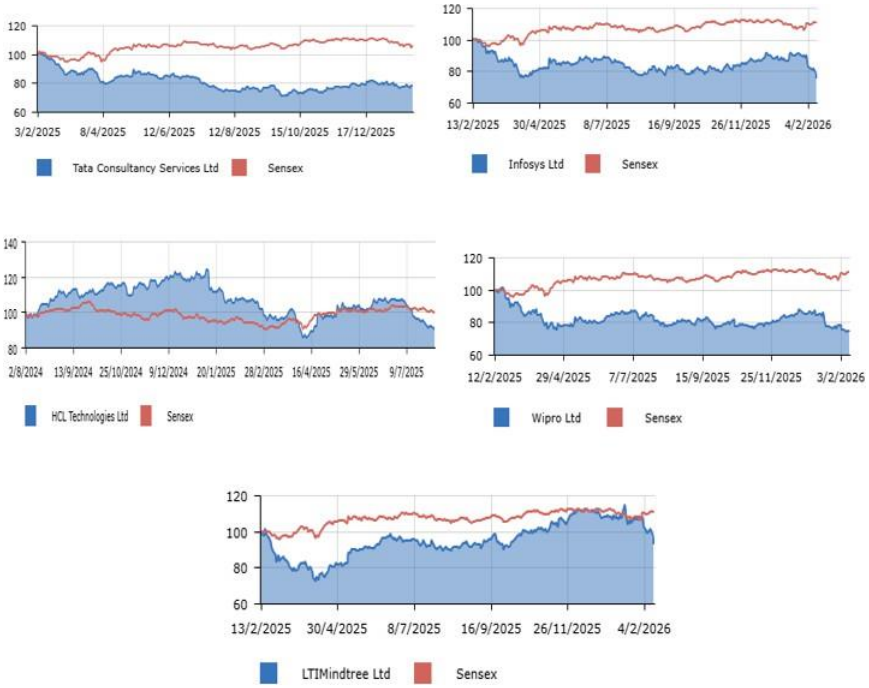
S.No	Company
1	TataConsultancyServicesLtd
2	InfosysLtd
3	HCLTechnologiesLtd
4	WiproLtd
5	LTIMindtreeLtd

Source: Author Compilation

ANALYSISANDINTERPRETATION

AllITstocksshowpositiveco-movementwithSensex,indicatingmarketdependency.However, most IT stocks underperformed the index, showing weaker relative returns.

- TCS→Stablebutbelowmarketreturn
- HCLTech→Volatilewithrecoverysigns
- Infosys→Continuousunderperformance
- Wipro→Maximumunderperformance
- LTIMindtreeisOutperformedpeers,closetomarketreturn



Graph1: Companies and Sensex.

Source:CMIDataBase

LTIMindtreeistheonlystockthatcloselytracksmarketgrowth,indicatingsuperiorperformance. Higher volatility in individual IT stocks compared to Sensex indicates greater risk at company level. The graphical analysis reveals that although IT stocks move in line with the BSE Sensex, most companies exhibit relative underperformance during the study period. LTIMindtree shows the strongest market alignment and returngeneration, whileWipro and Infosys display persistent lagging behaviour. This indicates that firm-specific factors play a significant role in determining stock performance beyond overall market movement.

Table2: Regression Statistics.

	Tata Consultancy ServicesLtd	Infosys Ltd	HCL Technologies Ltd
MultipleR	0.997	0.995	0.971
RSquare	0.994	0.989	0.944
AdjustedRSquare	0.978	0.962	0.802
Standard Error	83.197	19.349	178.952
Observations	8	8	8

Source:AuthorCompilation

TataConsultancyServices(TCS)

Multiple R = 0.997 which shows a *Very strong positive relationship* between predictors and dependentvariable.$R^2$99.4%ofthevariationinthedependentvariableisexplainedbythemodel → *excellent fit*.Adjusted R^2 = 0.978 → Even after adjusting for number of variables, the model explains 97.8% very reliable. Standard Error = 83.197 Prediction error is relatively higher than Infosys but acceptable considering scale. The regression model has an extremely strong explanatory power, and the independent variables almost completely explain the dependent variable.

InfosysLtd

MultipleR=0.995whichshowsaverystrongrelationship.$R^2$98.9%variationexplainedexcellent modelfit.Adjusted$R^2$96.2%explanatorypowerafteradjustmentishighlyreliable.StandardError 19.349 Lowest error among all three companies best prediction accuracy. This is the best fitting and most accurate model among the three (very high R^2 + lowest standard error).

HCLTechnologiesLtd

Multiple R = 0.971 Strong relationship (but lower than TCS & Infosys)., R^2 94.4% variation explainedstillagoodfit.AdjustedR^2=0.802→Dropsto80.2%afteradjustmentindicates:some predictorsmaynotbecontributingeffectively.possibleoverfittingormulticollinearity.Standard Error 178.952 Highest error poor prediction accuracy.Although R^2 looks high, the large drop in AdjustedR^2andveryhighstandarderrorindicatethatthemodeliscomparativelyweakerandless reliable.All three companies show a strong relationship between the independent and dependent variables.Infosyshasthebestregressionmodel(highestaccuracyandstrongexplanatorypower). TCS also shows an excellent fit, but with slightly higher prediction error and HCL's model is comparatively weaker, as indicated by the large standard error and a noticeable reduction in Adjusted R^2, suggesting that the selected predictors do not explain the dependent variable as

effectively.

Table3: Regression Statistics.

	Coefficients	*Standard Error*	*tStat*	*P-value*
TataConsultancyServices Ltd				
Intercept	-1067.023	364.023	-2.931	0.099
OperatingProfit	-2.679	0.768	-3.489	0.073
GrossProfit	2.841	0.765	3.714	0.065
OperatingExpenses	0.122	0.063	1.932	0.193
SellingandAdministrationExp.	0.015	0.096	0.158	0.889
DividendPerShare(Rs)	-0.007	0.015	-0.466	0.687
InfosysLtd				
Intercept	782.49	256.70	3.05	0.09
OperatingProfit	0.96	0.32	2.99	0.10
GrossProfit	-0.98	0.33	-2.96	0.10
OperatingExpenses	0.02	0.01	2.49	0.13
SellingandAdministrationExp.	-0.03	0.02	-1.49	0.27
DividendPerShare(Rs)	2.10	1.40	1.50	0.27
HCLTechnologiesLtd				
Intercept	-555.91	784.41	-0.71	0.55
OperatingProfit	-2.02	0.52	-3.85	0.06
GrossProfit	2.13	0.55	3.84	0.06
OperatingExpenses	-0.18	0.07	-2.61	0.12
SellingandAdministrationExp.	-0.20	0.07	-3.01	0.09
DividendPerShare(Rs)	22.62	5.95	3.80	0.06

Source:AuthorCompilation

For**TCS**, Gross Profit positively and Operating Profit negatively affect thedependent variable at the 10% significance level, while other variables are statistically insignificant. For **Infosys**, none of the financial variables show a statistically significant individual impact on the dependent variable, indicating weak predictor power despite high model fit.For **HCL Technologies**, Operating Profit, GrossProfit andDividendper Shareexhibita positive andstatisticallysignificant influence (at 10%), with Dividend per Share having the highest contribution.

Table4: ANOVA.

	df	*SS*	*MS*	*F*	*SignificanceF*
TataConsultancyServices Ltd					
Regression	5	2217328	443465.7	64.06817	0.015439422
Residual	2	13843.56	6921.778		
InfosysLtd					
Regression	5	68530.7	13706.14	36.60835	0.026802287

Residual	2	748.7986	374.3993		
HCLTechnologiesLtd					
Regression	5	1069614	213922.8	6.68012	0.135312626
Residual	2	64047.58	32023.79		

Source:AuthorCompilation

The F-statistic for **Tata Consultancy Services Ltd** is 64.06817 and the corresponding Significance F value is 0.0154, which is less than 0.05. This indicates that the overall regression model is statistically significant at the 5 percent level. Hence, the independent variables jointly explain a significant proportion of the variation in the dependent variable. The very high F value reflects the strong explanatory power and excellent goodness of fit of the model. Moreover, the residual sum of squares is very small when compared to the regression sum of squares, showing that most of the total variation is accounted for by the model. This confirms the existence of a strong and significant relationship between the predictor variables and the dependent variable in the case of TCS. Therefore, it can be concluded that Artificial Intelligence has a statistically significantimpactontheperformanceofTCS,andthealternativehypothesisisacceptedwhilethe null hypothesis is rejected.

TheANOVAresultsforInfosysLtdindicatethattheregressionmodelisstatisticallysignificantat the 5 percent level, as the calculated F value (36.60835) is high and the Significance F value (0.0268) is less than 0.05. This shows that the independent variables jointly have a significant effectonthedependentvariable.Therelativelysmallresidualvariancesuggeststhatthemodelfits the data well and possesses good explanatory power. Hence, the regression model is reliable for prediction.Therefore,it canbe concludedthatArtificialIntelligencehasa statisticallysignificant impactontheperformanceofInfosysLtd,andthealternativehypothesisisacceptedwhilethenull hypothesis is rejected.

For HCLTechnologies Ltd, the F value is 6.68012 and the Significance F value is 0.1353, which

isgreaterthanthe0.05levelofsignificance.Thisindicatesthattheoverallregressionmodelisnot statisticallysignificantatthe5%level.Therefore,thenullhypothesiscannotberejected.Itimplies that the independent variables, taken together, do not have a significant joint effect on the dependent variable.The comparatively high residual mean squarealso shows that a large portion

ofvariationremainsunexplainedbythemodel,suggestingweakexplanatorypoweroftheselected

predictors. Hence, it can be concluded that Artificial Intelligence does not have a statistically significant impact on the performance of HCLTechnologies Ltd during the study period, and the null hypothesis is accepted.

FINDINGS

- A positive association exists between AI adoption and the financial performance of the selected IT companies, showing its role in value creation.
- Forcertainfirms,theimpactofAIonprofitabilityandreturnsisstatisticallyinsignificant, indicating thatAI investment alone does not lead to immediate financial gains.
- Firms with greater digital capability and innovation orientation demonstrate stronger growth in revenue and market performance.
- Company-specific elements such as R&D spending, operational efficiency, and effective implementation strategies significantly influence performance outcomes.
- The advantages ofAI are realized gradually and are more visible in the long term rather than in the initial stages.
- Stock performance in the ITsector is shaped not only byAI adoption but also by broader economic and industry-related factors.

RECOMMENDATIONS

- IT firms should focus on strengthening AI-based innovation through planned and long-term investments rather than mere adoption.
- Continuoustrainingandupskillingprogrammesareessentialtobuildaworkforcecapable of effectively using AI technologies.
- Higherallocationtowardsresearchanddevelopmentanddigitalinfrastructurewillhelpin realizing the full potential of AI.
- AI should be integrated with key functional areas such as customer solutions, cloud computing, and cybersecurity to enhance revenue generation.
- Government and regulatory bodies should encourage AI adoption through financial incentives,fundingforresearch,andstrongercollaborationbetweenindustryandacademic institutions.
- Future research can be expanded by covering a larger sample of firms, longer time horizons, and additional financial and non-financial performance indicators.

CONCLUSION

The study confirms that Artificial Intelligence is a crucial technological force in the Indian IT industry;however,itsfinancialimpactisnotuniformacross allfirms.AlthoughAIcontributesto automation, innovation, and efficiency, the empirical results show that its immediate effect on

financialperformanceislimitedinsomecases.Thishighlightstheneedforsupportinginvestments in skilled human resources, digital infrastructure, and strategic alignment for successful AI integration. Companies that embed AI into their core operations are more likely to experience sustained financial improvement. Hence,AI should be considered a long-term strategic initiative rather than a tool for short-term profit enhancement.

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