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Does Artificial Intelligence Influence The Operational Performance Of Companies

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ABSTRACT
Business in today's world of Technological era is obviously influenced by the Artificial Intelligence (AI). AI needs to be considered as a significant element in the business development and growth. The study allows to consider AI as the digital technology that must be brought together to facilitate enhanced performance of business organizations. The study aims at a pilot study to assess the influence of AI on the operating performance of the companies and thereby fills the gap in the existing literature. This paper aims at establishing the relationship and exploring the influence of artificial Intelligence on operational performance of companies in different sectors in India. An attempt has been made to assess the difference in operational performance in pre and post AI era. In the study, the artificial Intelligence is measured by the variables such as computer hardware and intangibles (computer software etc.). The operating profit and operating cost have been taken as the proxy variables for operational performance of companies. The study was based on secondary data which has been collected from annual reports of sample companies. The sample companies under study comprise of manufacturing, telecommunication, and IT companies for the time period from the year 2004 to 2018. The statistical software i.e., Ms. Excel and EViews 10 have been used to run the t-test and panel regression model for statistical inferences. The study found that artificial Intelligence has a significant influence on companies operating cost as well as operating profit.

Keywords: Artificial Intelligence, Digital Technology, Operating Profit, Operating Cost.

1. INTRODUCTION

The prospect of Artificial Intelligence in the technological sector is very positive. The introduction of AI makes it even easier to provide better and prompt services to its customers. AI technology is continually developing, and no one among us knows how AI will amaze us over time. At the same time, organizations need to take advantage of AI's ability to stay viable. The future of AI in the technology and services sector looks much clearer, increasing their revenue multi-fold. Although there are specific fears like job loss, process opacity, reduced customer loyalty coupled with the increase in AI implementation, we should be more adaptive and willing for the apparent change of the near future.

With the speedy expansions of artificial intelligence (AI) tools, organizations from emerging markets have initiated embracing AI functions to boost their performances and find aspects to multiply their business. Prominent developing countries like China perceive a rising drift in AI submissions. The rapid

development of machine learning and deep learning has produced considerable strides in cognitive computing and natural language processing, laying the foundations for AI business applications (Bughin et al., 2017). AI is primed to restructure most emerging economies, such as information systems, finance, labor, human resource management, marketing, advertising, business strategy, supply chain management, and services. Consequently, nous industrialists are exploring the potential of AI tools to reduce the costs and barriers of doing business, improving performances.

In emerging markets, AI provides a technological solution to the economic challenges faced by governments, firms, and people at the bottom of the economic pyramid. Integrating data from multiple sources (e.g., websites, social media, and traditional channels) can help firms build data management platforms, develop sound business strategies, low barriers to doing business, create innovative business models, and spur economic development (Arora, Rahman, & Alon, 2017). Firms in developing countries may use innovative AI-based solutions to enhance autonomous goods and service delivery, implement production automation, and develop mobile AI apps for services and credit access (Strusani & Houngbonon, 2019). By enhancing productivity, business process automation, financial solution, and government services, AI-based technologies can create opportunities and expand markets. Powered by AI, the public and private sectors in emerging markets can find leapfrogging solutions and work together to reduce poverty and inequality while boosting economic mobility and prosperity (Andrews et al., 2019). Hence, it calls for more research and studies for in-depth analysis and awareness of AI's opportunities and challenges in an emerging market economy. The recent literature findings suggest that the firms may enhance their value by adopting IT and organization structure. Numerous studies have been undertaken in Artificial Intelligence, but a few studies have been focused on the association between AI and operational performance. The main objective of the current study is to examine the influence of Artificial Intelligence on firm performance.

The rest of the paper is structured as follows: Section 2 highlights the evolution and existing literature available in this field. Section 3 represents the research problem and objectives of the study; Section 4 presents the research methodology. Section 5 is devoted to results and discussion, while section 6 includes the study's findings and conclusion.

2. LITERATURE REVIEW

This section presents a comprehensive analysis of existing literature on Artificial Intelligence and its influence on operational performance.

2.1. Artificial intelligence and its evolution over the period

Artificial Intelligence means technological devices' employment to reproduce humans' cognitive abilities to achieve objectives autonomously (McCorduck et al., 1977; Benko and Lanyi, 2009; Haenlein and Kaplan, 2019). The creation and evolution of Artificial Intelligence over the period are described below;

1940-1956:

- Wiener introduces cybernetics, i.e., helpful for mapping the human mind, to model the mind as a "black box" with the behavior dependent on feedback mechanisms. This approach was also supported by Donald Hebb, who helps to endow formal neurons with learning capacities (Brown and Miller, 2003).

- McCulloch and Pitts developed the first mathematical model of the biological neuron in 1943 using a physiological approach to Artificial Intelligence (Benko and Lanyi, 2009; Haenlein and Kaplan, 2019; McCorduck, Minsky, Selfridge and Simon, 1977).

- Allen Newell developed the notion of heuristics in 1945. Later on, Herbert Simon invented the idea of limited rationality in 1947. The above works illustrate the cross-fertilization between Artificial Intelligence and computer science. Computer science's growth boosts the AI experiments (Benko and Lanyi, 2009; Haenlein and Kaplan, 2019; McCorduck et al., 1977).

- Shannon had designed the information theory and digital electronics by establishing the

association between electrical circuits and Boolean algebra between 1937 to 1948 (Verdu, 1988).

- Nathaniel Rochester had contributed several Artificial Intelligence works, i.e., "development of the LISP language, the Geometry Theorem Prover, and the first symbolic assembler language" (Gelernter, Rochester, & Development, 1958; Rochester, Holland, Haibt, & Duda, 1956).

- Donald Hebb invented a rule in 1949 that allows formal neurons to be equipped with learning abilities. This rule helps to establish a link between language and thought (Benko & Lányi, 2009; Haenlein & Kaplan, 2019; McCorduck et al., 1977).

- John McCarthy considered a logical approach for developing a thinking machine (Kline, 2010; McCarthy, 1989).

- Marvin Minsky considered a schematic approach for developing an artificial neural network (Minsky, 2007; Minsky & Papert, 1972).

- In 1954, Georgetown University wrote a program to translate normal sentences. They had used 250 words and six grammar rules in their program. They ran IBM 701(Hutchins, 2004).

- Von Neumann's contributed the skeleton of a calculator, and Turing's developed the calculable functions by machines (Benko & Lányi, 2009; Godfrey & Hendry, 1993; Haenlein & Kaplan, 2019; McCorduck et al., 1977).

- Newel, Simon, and Shaw invented the Information Processing Language in 1956, consisting of the list structures. It allows manipulating chained elements to reproduce human memory's associative character (Benko & Lányi, 2009; Haenlein & Kaplan, 2019; McCorduck et al., 1977).

- Ray Solomonoff invented algorithmic probability and contributed to machine learning (Solomonoff & Sciences, 1997).

- Artificial Intelligence's humor has existed in films and television series, but it originated from McCarthy's conference at Dartmouth College (USA) (McCarthy, Minsky, Rochester, & Shannon, 2006).

1956-1974:

- It is the golden era of Artificial Intelligence, where a lot of funding introduced for AI research (Buchanan, 2005).

- MYCIN was developed to identify the bacteria for severe infections and suggesting the proper antibiotics (Shortliffe et al., 1975).

1974-1980:

- In this period, the expectations lead to the first "winter" of Artificial Intelligence (Benko & Lányi, 2009; Godfrey & Hendry, 1993; Haenlein & Kaplan, 2019; McCorduck et al., 1977).

1980-1987:

- The outgrowth of intelligent systems gave birth to a new wave of trend and decisiveness in Artificial Intelligence's growth. Kai-Fu Lee and Sanjoy Mahajan invented a "Bayesian learning system for playing the board game Othello" (Benko & Lányi, 2009; Godfrey & Hendry, 1993; Haenlein & Kaplan, 2019; McCorduck et al., 1977).

1987-1993:

- The hardware industry's unexpected exhaustion gave scope for the second Artificial Intelligence "winter" (Benko & Lányi, 2009; Haenlein & Kaplan, 2019; McCorduck et al., 1977; Wamba et al. 2017).

1993-2011:

- In 2011, many IT companies had adopted artificial Intelligence fully. It helps them to find out the data quickly and to track their day-to- day activities. The growth in data availability, connectivity development, and the increase in electronic devices allowed for further advances. It

led to a sharp rise in the number of patent applications in Artificial Intelligence from 2012 (Yoav Shoham, 2018).

2.2. Artificial intelligence and firm performance

Bag et al. (2020) had made a study on "An integrated artificial intelligence framework for knowledge creation and B2B marketing rational decision making for improving firm performance". They have examined the influence of artificial Intelligence on firm performance through customer knowledge creation, user knowledge creation, external market knowledge creation. They have considered primary data from B2B companies functioning in the South African mining industry. The study concluded that Artificial Intelligence influences the firm value significantly. Mikalef and Gupta (2021) had conducted a study on "Artificial Intelligence Capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance." The investigation has analyzed the association between Artificial Intelligence capability with organizational creativity and performance through a conceptual research model. They have confirmed that Artificial Intelligence proxies have a positive influence on organizational performance. Other studies have documented similar findings, Artificial Intelligence drives business flexibility and performance (Mishra and Pani, 2020; Mikalef and pateli, 2017; Benitez and Ray, 2012; Liu et al. 2020, Rout et al, 2018), amplifiers of an intrapreneurship culture (Benitez, Llorens-Montes, and Perez- Arostegui, 2010; Mikalef and Krogstie, 2020), as a technique to minimize trade-offs (Goh and Arenas, 2020). Wamba-Taguimdje et al. (2020) had analyzed the impact of artificial Intelligence on firm performance by using 500 case studies from different International IT companies. They have highlighted that artificial Intelligence improves performance at both organizational and process levels. By employing AI technology, firms can enhance their business value and capability. It is possible when organizations adopt the technologies to reconfigure their processes. Oke (2008) and Miller (2017) have also supported the above statement and found that artificial Intelligence positively influences organizational performance. Sharad (2018) examined Artificial Intelligence's concepts & their influence on accounting by focusing on the digitization accounting process in corporate. He concluded that artificial Intelligence would not enhance the accounting process, but it will help achieve corporate success. Zehong and Zheng (2018) examined the impact of artificial Intelligence on accounting fraud and accounting information quality. They have concluded that Artificial Intelligence will help to evaporate the accounting frauds and will also enhance the quality of accounting information. Margaret (2018) investigated the relationship between Artificial Intelligence & accounting and finance. The study has found that AI transforms the audit and contract functions.

2.3. Artificial Intelligence and Futures of Accounting

Since 2011, Artificial Intelligence has been growing faster due to the advancement in computer science. The technologies are reshaping the future of organizational processes and their performance. In this context, Riley (2018) studied the new era of accounting through artificial intelligence implications. The results indicated that Artificial Intelligence would help accountants enhance their insight, and the firm that will adopt AI will enjoy a significant competitive advantage. Avneet (2018) focused on the future of accounting with the help of artificial Intelligence. He concluded that intelligent systems would take a massive load off accountants. The study has also revealed that AI will help in data handling and data processing. Max (2016) studied the benefits and risks of artificial Intelligence and propounded that AI will prevent the risks and enhance all the corporate benefits. The study has also revealed some myths of artificial Intelligence. Khera (2019) analyzed the impact of Artificial Intelligence on the education of Indian students. The study has found that AI will help find the gaps in the student's learnings, and it will also provide real-time solutions. Najjar (2019) explained the future of accounting in the era of artificial Intelligence. He revealed that AI would make everyone's life easy and relaxed. Mann (2019) discussed the opportunities for accountants with the advent of artificial Intelligence. He said that AI would assist accountants in decision-making and automate the tasks. Artificial Intelligence will also develop tools to solve current and contemporary issues. Galarza (2017) defined "How Accountants can future proof their careers in the era of AI." He observed that Artificial Intelligence would transform the

accounting industry. He has believed that new technologies will create opportunities for accountants to adopt new skills and knowledge.

A limited list of international empirical studies on the relationship between IT investment and corporate performance is described below:

- "Information Technologies and Business Value: An Analytic and Empirical Investigation." They have found a mixed relationship between IT investment and corporate performance (Barua et al., 1995).
- "Beyond the Productivity Paradox." The study has found a positive relationship between IT investment and corporate performance (Brynjolfsson and Hitt, 1998).
- "Productivity, Profit and Consumer Welfare: Three Different Measures of Information Technology's Value." It is found that corporate performance is influenced by IT investment (Hitt and Brynjolfsson, 1996).
- "A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation." The study results show a positive relationship between corporate performance and IT investment (Bharadwaj, 2000).
- "IT Competency and Firm Performance: Is Organizational Learning a Missing Link?". They have concluded that IT investment and corporate performance have a significant association with organizational learning capability (Tippins and Sohi, 2003).
- "Information Technology and Performance of The Customer Service Process: A Resource-Based Analysis." The study revealed a mixed result between IT investment and corporate performance (Ray et al., 2005).
- "Issues in Linking Information Technology Capability to Firm Performance." They have concluded a strong relationship between corporate performance and IT investment (Santhanam and Hartono, 2003).
- "IT Capabilities and Firm Performance: A Contingency Analysis of the Role of Industry and IT Capability Type." The study results show a mixed result between IT investment and corporate performance (Stoel and Muhanna, 2009).

Artificial Intelligence will allow the organization to increase its efficiency in human resources, operation, supply chain, customer experience, improved product, and quick services (Kuzey et al., 2014; Pwc, 2019). Thus, this paper used 5 IT companies to check Artificial Intelligence's influence on their operational performance.

3. RESEARCH PROBLEM

Wamba-Taguimdje (2020) identified a positive association between artificial Intelligence and performance at both organizational and process levels. Oke (2008); Miler (2017); Zehong and Zheng (2018); Margaret (2018) have also found a positive association. However, Sharad (2018) contradicts the above findings, and he inferred a negative association between artificial Intelligence and organizational performance. In today's society, information technology is a powerful force. Information technology positively impacts organizational performance (Barua et al., 1995; Hitt and Brynjolfsson, 1996; Brynjolfsson et al., 1998; Bharadwaj, 2000; Tippins and Sohi, 2003; Santhanam and Hartono, 2003). From the past literature, the studies have been done basically in a theoretical context, and in India, a very limited number of studies have been undertaken. On the research gap and problem as found by the above tasks, the researchers aimed to address the following questions:

- Whether there is any difference in operating cost and operating profit after adoption of Artificial Intelligence?

Do AI influences financial performance of companies?

4. OBJECTIVES

Based on the research questions, we have designed the following objectives:

To study the difference in operating cost and operating profit after the adoption of artificial Intelligence.

1. To measure the impact of AI on the financial performance of companies.

5. METHODOLOGY

5.1. Data

This study analyzes the impact of Artificial Intelligence on the financial performance of 5 IT companies (TCS, Infosys, Bharti Airtel, Wipro, ITC) during 2004-2018. The study is based on purposive and convenient sampling, where data were collected from companies' annual reports. This study has considered a time frame of 7 years before 2011 and 8 years after 2011. We have considered 2011 as a standard because, from this period, Artificial Intelligence was started growing faster, and many IT companies have inculcated AI systems in their business. Purposively we have taken 5 IT companies based on profitability. We have considered profitability because it shows the efficiency and success or failure of a business. To sustain itself in the market, an organization must earn from its investment. So, it helps to know the firm's ability to generate a return on capital invested. Here, the return on investment defined the profitability concept. Our study is based on an explanatory research design where artificial intelligence variables explain the variation in financial performance.

5.2. Variables

The study has used financial performance as the dependent variable measured by Operating Cost (OC) and Operating Profit (OP) in relative terms of Capital Employed (CE).

The explanatory variables include Hardware (HW) and Intangibles (ING) as the proxy variable of artificial Intelligence.

5.3. Statistical Tools &Techniques:

The following tools and techniques used for the study: -

- T-test to study the performance before and after use of AI
- Descriptive statistics to know the characteristics/features of variables used
- Regression to measure the impact of AI on performance

5.4. Research Hypothesis:

Objective -I

Null Hypothesis: There exists no significant difference in operating profit before and after the use of AI.

Null Hypothesis: There exists no significant difference in operating cost before and after the use of AI.

Objective -II

Null Hypothesis (Ho): - Operating profit is not influenced by AI.

Null Hypothesis (Ho): -Operating cost is not influenced by AI.

6. RESULTS & ANALYSIS (OBJECTIVE-I)

The below table results reveal that the Mean Operating profit of Bharti Airtel, TCS, and ITC after introducing AI is found to be more than that before AI, which signifies that with the use of AI, the Operating profit of the companies has increased. In the case of Infosys and Wipro, the mean operating profit has declined. The profitability may be hampered due to the cost incurred for Artificial Intelligence's development and lack of human intelligence. They are required for the smooth operation of the business. Again, the Mean Operating Cost of Bharti Airtel and Wipro has been declined with the implementation of AI, which signifies that with the use of AI, operating cost has also decreased. Regarding the other companies, the increase in the mean value may be due to other factors not considered for the study.

Also, the Standard Deviation (Variation) in Operating Profit and Operating Cost of all the sample Companies under study have significantly decreased with the introduction of AI. This means, AI brings stability in operating profits and operating costs of the sample companies over the years.

Table 1: Descriptive Statistics (OP&OC)

		OP/CE		*OC/CE*	
		Before AI	***After AI***	***Before AI***	***After AI***
Bharti Airtel	***Mean***	16.90	29.62	47.96	41.12
	Std. Deviation	9.18	1.92	22.18	7.31
TCS	***Mean***	38.03	44.06	106.40	108.99
	Std. Deviation	25.57	4.06	69.81	10.46
Infosys	***Mean***	34.22	32.90	73.71	75.05
	Std.	14.13	2.84	31.42	3.58

	Deviation				
Wipro	***Mean***	26.39	24.66	99.45	92.88
	Std. Deviation	11.64	4.22	41.25	11.42
ITC	***Mean***	21.43	29.62	47.15	54.74
	Std. Deviation	8.75	1.92	19.79	5.88

Source: Self Compiled

The below statistical results reveal that the p- Value of Bharti Airtel & ITC regarding the Operating Profit is within the standard norm of 0.05 at 5% significance. So, the Null hypothesis that no significant difference exists in Operating Profit before and after using AI cannot be accepted. In other words, there exists a significant difference in operating profit in Bharti Airtel & ITC before and after the use of AI.

Also, the p-Value of the sample companies regarding the Operating costs is more than the standard of 0.05, which signifies that the use of AI has not resulted in any significant difference in the operating costs of the sample companies. The result says that companies required a massive investment to develop artificial intelligence, employing skilled workers, which incurs huge salaries, lack of experience, and creativity.

Company	***p-Value***	
	OP/CE	***OC/CE***
Bharti Airtel	*0.006*	*0.324*
TCS	*0.498*	*0.915*
Infosys	*0.783*	*0.911*
Wipro	*0.619*	*0.625*
ITC	*0.018*	*0.247*

7. RESULTS & ANALYSIS (OBJECTVE- II)

7.1 Impact of Artificial Intelligence on OP-CE

Table 3: Hausman Test Result

Probability Value	**Decision**
0.4059*	Random Effect Model

Source: Self Compiled

Hausman Test is applied to find out whether Fixed Effects Model or Random Effects Model is appropriate. Hausman Test shows that the probability value of 0.4059 is more than the accepted norm at a 5% significant level. Therefore, we accept

the null hypothesis (H0), which indicates that the Random Effects Model (REM) is appropriate.

Table 4: Regression (REM) results (Dependent variable = OP/CE)

Variables	*Coefficient*	*Prob*
Constant	63.81890	0.0000
HARDWARE	9.144829	0.0011
INTANGIBLES	1.460374	0.0865
Tests		
R^2	0.357	
Adjusted R^2	0.327	
Probability (F-Stat)	0.000	

Source: Self Compiled

The coefficient of determinant, R2 is 0.357, which means 35.74% of the variation in operating profit is determined by artificial Intelligence. Adjusted R2, which is calculated by adjusting a number of variables in the model, is 0.326855.

The model has an F-statistic p-value of 0.0000, which is less than the norm at a 5% significant level. Hence, there exists a significant relationship between Artificial Intelligence and the operating profit of sample companies.

Regression Equation:OP = β0 + β1 HW + β2 ING + ε

Where, β0= Intercept β1 , β2 = Coefficients OP = Operating Profit
HW = Hardware; ING = Intangibles

So, Performance = 63.81890+ -9.144829 HW + -1.460374 ING + 2.754140ε

In the model, Hardware and operating profit are significant at a 5% significance level. The coefficient of HW is 9.144829. If hardware increases by 1%, on average, performance will enhance by 9.144829%, keeping other variables stagnant. Thus, there is a positive relation between operating profit & hardware. Similarly, intangibles and operating profit are insignificant at a 5% significance level. The coefficient of ACM is 1.460374. The results are clearly in favor of the view that Artificial Intelligence drives the firm performance. This result is supported by (Barua et al., 1995; Hitt and Brynjolfsson, 1996; Heo and Han, 2003; Bergeron et al., 2004; Jean et al., 2008). The results indicate that Artificial Intelligence helps firms be more flexible in the modern era and gain a competitive advantage. Information technology has improved the potential of all firms. It helps in analyzing problems, decision- making and improves organizational learning. Further, Artificial Intelligence infrastructure is one of the determinants of high and stable sales and improves market share.

7.2 Impact of Artificial Intelligence on OC-CE

Table 5: Hausman Test Result

Probability Value	**Decision**
0.2263*	Random Effect Model

Source: Self Compiled

Hausman Test is applied to find out whether Fixed Effects Model or Random Effects Model is appropriate. Hausman Test shows that the probability value of 0.2263 is more than the accepted norm at a 5% significant level. Therefore, we accept the null hypothesis (H0), which indicates that the Random Effects Model (REM) is appropriate.

Table 6: Regression (REM) results (Dependent variable = OC/CE)

Variables	*Coeff*	*Prob*
Constant	96.9600	0.0009
HARDWARE	1.96347	0.8032
INTANGIBLES	6.10246	0.0115
Tests		
R^2	0.927	
Adjusted R^2	0.915	
Probability (F-Stat)	0.000	

Source: Self Compiled

The result shows R2 is 0.927, which shows 92.7% of the variation in operating cost is due to variation in artificial Intelligence. Adjusted R2 is found to be 0.915 for adjusted R2 that signifies the explaining of operating cost variation by variation in artificial Intelligence to the extent of 91.5% considering sample size and the number of independent variables in the model.

The F-statistic p-value is 0.000, i.e., less than the norm at a 5% significant level. So, the H0 cannot be accepted. Hence, it can be said that there exists a substantial relationship between independent variables and dependent variable.

Regression Equation:

$OC = \beta 0 + \beta 1\ HW + \beta 2\ ING + \varepsilon$

Where, $\beta 0$= Intercept $\beta 1$, $\beta 2$ = Coefficients OP = Operating Cost

HW = Hardware; ING = Intangibles

So, Operating cost = 96.96009+ -1.963471HW + -6.102466 ING + 7.591465ε

In the model, intangibles and operating cost are significant at a 5% significance level. The coefficient of HW is 6.102466. If intangibles increase by 1%, on average, operating cost will increase by 6.102466%, keeping other variables constant. The result shows a positive relation between operating cost and intangibles. Also, hardware and operating cost are insignificant at 5% significance level. The coefficient of intangibles is 6.102466.

The result says that Artificial Intelligence requires enormous investment, which boosts the operating cost. Further, it requires skilled workers and infrastructure. The maintenance of the IT system is also very high, which leads to the overall cost. Thus, managers have to choose appropriate IT infrastructure to improve their operational performance and organizational structure.

8. FINDINGS

- Bharti Airtel: -Operating profit of the company has increased after the introduction of AI whereas at the same time, even if the operating cost has decreased with the use of AI but it is not significant.
- TCS: - Even if with the use of AI, operating profit has increased over the years, but it is insignificant whereas operating cost has increased marginally over the years. So, there is no such major impact on TCS with the use of AI.
- Infosys: - In Infosys, there is no significant change in both operating profit and operating cost before and after the introduction of Artificial Intelligence. So, there is no impact on the financial performance of the company due to AI.
- Wipro Ltd: - The operating cost has decreased over the years due to the advent of AI, but such reduction is very insignificant. But at the same its operating profit has also reduced marginally.
- ITC ltd: -AI has been beneficial for ITC as its operating profit increased significantly with the use of AI but at the same time it is well complemented by increase in operating cost also.

There is a positive relationship between AI variables and Operating profit & operating cost.

CONCLUSIONS

The study has attempted to establish a relationship between operational performance and artificial Intelligence. It consists of data from 2004-
18 to study the difference in operating cost and operating profit with artificial Intelligence. The study finds that operating profit has been influenced by artificial Intelligence in sample IT companies. The study further says that there is a positive relationship between operating profit and hardware as well as operating cost and artificial Intelligence. Hence, the variables taken under our study need to be properly taken care of by the IT companies in India to boost the morale of the shareholders.

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