International Journal of Business Integrity and Technology Advancements (IJBITA)

Volume – 02
Issue – 02
(2026)

Artificial Intelligence and Data Analytics Integration Transforming U.S. Business Intelligence Practices

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Article Info:
Received: 03 Aug, 2026
Processed: 24 Sep, 2026
Published: 09 Oct, 2026

Keywords: Artificial Intelligence, Data Analytics, Business Intelligence, Organizational Performance, Business Analytics, Digital Transformation, Decision Support Systems, Machine Learning, Predictive Analytics, AI Integration, Data-Driven Decision Making, Organizational Innovation.

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ABSTRACT

Purpose

This study looks at the impact of artificial intelligence (AI) and data analytics on the business intelligence (BI) space and how they can help improve organizational performance in the USA. The study looks at the various impacts of using AI, its analytical power, the effectiveness and implementation issues of BI, and how all of these together collectively affect the competitiveness and digital transformation of organizations.

Design/Methodology/Approach

This study used a quantitative cross sectional survey design. A 35-item structured questionnaire was administered on a Likert scale to 300 experts from organizations using AI at the United States. The seven constructs measured by the instrument were linked with the use of AI, the ability to use data analytics, the effectiveness of business intelligence, organizational performance and future readiness. Cronbach's alpha was used to evaluate the reliability and the proposed relationships were analyzed by descriptive statistics, Pearson correlation, multiple regression and ANOVA in SPSS.

Findings

The findings of the study show that the organizations are in the stage of high level of AI adoption, data analytics capability and effectiveness of Business Intelligence. The results of the correlation analysis showed that all major constructs were positive and significant. Multiple regression analysis showed that Business Intelligence Effectiveness ($\beta = 0.34$) and AI and Data Analytics Integration ($\beta = 0.31$) were the most important factors in predicting organizational performance. Negative impact of challenges and ethical issues was identified. The regression model achieved an R2 value of 0.67, which accounted for 67% of the variance in organizational performance, and was statistically significant ($F = 74.32$, $p < 0.001$), further supporting the significance of business intelligence through AI for organizational success.

Practical Implications

The study provides executives and decision-makers with actionable tips and strategies on how to leverage their AI-enabled business intelligence tools to improve their organization's performance. The findings emphasize the importance of focusing on investments in advanced analytics, reskilling the workforce, and building robust governance and management structures for AI and data to maximize value and secure a competitive advantage in the business.

Originality/Value

The present study offers an empirical understanding of the strategic use of AI and data analytics in the system of business intelligence in the United States. It offers a holistic view on how smart analytics can support better organizational decision making, operations, innovation and long term business success and highlights the importance of considering ethics and governance issues when seeking digital transformation.

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INTRODUCTION

Artificial Intelligence (AI) and Data Analytics are two of the most significant technological developments in today's age that have revolutionized business intelligence practices in the United States. In this context, intelligent systems are rapidly gaining significance for the collection, processing, analysis and interpretation of large quantities of structured and unstructured data to support decision making processes, with the aim of being competitive in the world market, with many other organizations, [1]. Traditional business intelligence systems were mainly descriptive reporting and historical analysis, however, with the arrival of AI technologies, these systems can be intelligent and provide predictive analysis, automated decision making and real time analysis of business operations [2]. This change enables businesses to adjust to the changing market environment, customer needs, business challenges and new opportunities.

Over the years, business intelligence has grown beyond just reporting to a full-fledged decision support system that encompasses machine learning, predictive analytics, natural language processing and intelligent automation [3]. These technologies can be used to detect trends, predict future results, manage resources effectively and enhance organizational performance [4]. Data analytics is the primary way to get valuable information out of massive amounts of information, but AI goes further by learning from past information and making better forecasts. When implemented together, these technologies can help businesses to make proactive and data-driven decisions, instead of reactive ones [5].

Across industries, including financial, health care, retail, manufacturing, logistics, telecommunications, and information technology, companies have substantially ramped up their investments in AI-powered analytics solutions in the United States [6]. The use of intelligent Business Intelligence systems has been further increased with the advent of Cloud Computing, Big Data infrastructures, Internet of Things (IoT) devices and digital transformation projects. However, today organizations are collecting enormous amounts of data from operations and their customers that they can't analyze using traditional reporting techniques but by using advanced analytical techniques [7]. These massive amounts of information can be analyzed efficiently with the help of AI, and can also generate actionable insights that can enhance the agility, innovation, and competitiveness of the organization.

Furthermore, AI and data analytics have transformed the organizational culture and adopted a new paradigm of data-driven decision making [8]. The use of intelligent dashboards, predictive models, automated reporting and cognitive analytics are increasingly vital to business strategy and operations management [9]. These technologies can be used to minimize man power, increase prediction accuracy, enhance customer relationship management, optimize supply chain management, uncover frauds and enhance risk management practices [10]. AI and business intelligence are not just investments in technology, but a key strategic capability for any organization seeking to become digital.

While AI and data analytics have numerous benefits for business intelligence, organizations must address certain challenges in using these technologies [11]. Still, data quality, cyber security, privacy laws, ethics issues, employee knowledge, cost, and organizational resistance to change are barriers to effective adoption of these systems [12]. In addition to technology, a strong governance structure, knowledge and organizational readiness and ethical considerations play a major role in the successful integration [13]. The businesses should be transparent, fair, accountable and compliant, and should also maximize value with smart analytics.

For both researchers and practitioners, it is now important to grasp the joint impact of AI and data analytics on the application of business intelligence practices. Many organizations have adopted AI technologies, but the effectiveness of the integration of AI technologies in business intelligence and their impact on the improvements of the organizational performance is an interest of the scholars. It is therefore the objective of this study to explore the application of artificial intelligence and data analytics for the transformation of business intelligence practice in U.S. organizations. Their findings are expected to drive scientific progress and contribute valuable insights for managers, policy makers, and technologists to develop their AI-powered BI strategies for sustainable growth and long-term competitive advantage in their organizations.

PROBLEM STATEMENT

A company's business intelligence is an important tool to use and more and more organizations are investing in artificial intelligence and data analysis to improve their capabilities. However, there remain challenges that many businesses encounter when they try to effectively implement these technologies to generate timely, accurate and actionable insights. Despite the benefits of AI-driven business intelligence, there are several factors that can limit its effectiveness, including organizational readiness, data quality concerns, ethical considerations, and implementation challenges. Hence, this study recommends investigating the significance of AI and data analysis in BI practices and organizational performance in the context of U.S. organizations.

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LITERATURE REVIEW

A. ARTIFICIAL INTELLIGENCE IN BUSINESS INTELLIGENCE

One of the agents that has brought a revolution in the generation, treatment and use of business information is AI [14]. Business Intelligence systems are based on Artificial Intelligence technologies to analyze the data sets very fast and accurately which are too complex to be analyzed by traditional analysis. They may also learn and continually improve their forecasts from previous patterns, and NLP can aid organizations in understanding the textual information from various resources [15]. These features are smart and transform business intelligence from a report to a live decision support system, capable of offering real time business action [29].

B. DATA ANALYTICS AS A STRATEGIC RESOURCE

Data Analytics is the analytical backbone of modern business intelligence in today's age. Most of the organizations are using descriptive, diagnostic, predictive and prescriptive analytics in their strategic planning and operation efficiency [16]. Organizations can benefit from advanced analytical techniques to learn more about their customers' preferences, anticipate market trends, optimize available resources, and enhance financial results [17]. Today, businesses and organizations are generating a ton of digital data, and data analytics is a crucial skill for them to employ to improve and operate their businesses on data evidence [28].

C. INTEGRATION OF AI AND DATA ANALYTICS

AI and data analytics work together to create intelligent business ecosystems that can assist in automating intricate analytical workflows and enhance decision quality [30]. What AI can do more than simply analytics, is finding patterns that have never been seen before, anomalies, predictions and recommendations for optimal actions for business [18]. The integration makes it possible to move beyond reporting on the past to prediction and prescription, in order to facilitate decision making [19]. By leveraging AI and analytical tools, businesses can enhance their agility, predictive power, and decision-making capabilities.

D. BUSINESS INTELLIGENCE TRANSFORMATION

Business intelligence has reached a whole new level with digital transformation projects. The capabilities of BI systems have been extended with cloud computing, Big Data technologies, IoT and intelligent automation [20], [31]. Interactive dashboards and automatic reporting, along with real-time monitoring, are starting to become a useful tool for organizations to improve managerial decision making [21]. Business intelligence with AI helps businesses react quicker to their shifting environment and allows them to better spot opportunities and risks. The developments have turned business intelligence from a strategic asset of an organization to a reporting task [36], [35].

E. ORGANIZATIONAL PERFORMANCE AND COMPETITIVE ADVANTAGE

AI enables business intelligence, which can revolutionize how companies operate, leading to increased productivity, innovation, customer satisfaction, and efficiency [33]. The intelligent analysis would help the managers to optimize the business processes, resource utilization and proactively take the right decisions to handle the market dynamics [22]. These decisions can help organizations become more competitive through better forecasting, supply chain management, data-driven personalized customer experience, and new products and services that are driven by data [23], [32]. AI and sophisticated analytics enable businesses to be more resilient and adaptable in an ever-changing business environment.

F. CHALLENGES AND FUTURE DIRECTIONS

Although AI and data analytics can offer a number of benefits to a business, there are some drawbacks. Some of the challenge areas that affect successful implementation of AI are data privacy, cybersecurity threats, implementation cost, algorithmic bias, regulatory compliance and lack of qualified personnel [24]; [25]. By implementing strong governance frameworks, AI ethics guidelines, and continuous education and training for employees, organizations can ensure that the benefits of AI are maximized while mitigating potential risks. Among these are the features of generative AI, explainable AI, edge analytics, and real-time decision support, which have the potential to transform the future of business intelligence systems, making them more autonomous, adaptive, and intelligent [30], 26]. The changes will continue to influence the business intelligence processes and will assist companies to remain even more competitive in data-driven economies [27].

RESEARCH QUESTIONS

RQ1: How does artificial intelligence adoption influence business intelligence practices in U.S. organizations?
RQ2: What is the impact of data analytics capability on business intelligence effectiveness?
RQ3: How does the integration of artificial intelligence and data analytics improve organizational performance?
RQ4: What challenges do U.S. organizations face in implementing AI-enabled business intelligence systems?

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RQ5: How does business intelligence effectiveness contribute to organizational competitiveness and future readiness?

RESEARCH OBJECTIVES

RO 1.To examine the influence of artificial intelligence adoption on business intelligence practices in U.S. organizations.

RO 2.To evaluate the role of data analytics capability in enhancing business intelligence effectiveness.

RO 3.To investigate the impact of AI and data analytics integration on organizational performance.

RO 4.To identify the major challenges associated with implementing AI-driven business intelligence systems.

RO 5.To assess the contribution of business intelligence effectiveness to organizational competitiveness and future readiness.

METHODOLOGY

A. RESEARCH DESIGN

The study employed a quantitative research design and cross-sectional survey approach to study the impact of the integration of AI and data analytics on BI practices in organizations in the United States (US). The study was carried out using the positivist philosophy which emphasizes objective measurement of the relationship between the selected variables is done by statistical analysis. The quantitative approach was considered appropriate because hypotheses could be tested, the empirical validity could be established, and the results could be generalized to other works settings.

B. POPULATION AND SAMPLE

The target population was professionals who work in US organizations that actively use artificial intelligence (AI), business intelligence (BI), and data analytics technologies for strategic and operational decision-making. Managers, business analysts, IT professionals, executives and data specialists from a variety of sectors, including finance, healthcare, retail, manufacturing, logistics, telecommunications and IT, all responded. Purposive sampling was employed to select a sample of 300 respondents who have pertinent knowledge and hands-on experience with AI-powered business intelligence systems.

C. RESEARCH INSTRUMENT

A structured questionnaire with 35 closed-ended items using a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) was used to collect primary data. The questionnaire was created through a comprehensive literature review and consisted of seven constructs namely Artificial Intelligence Adoption, Data Analytics Capability, AI and Data Analytics Integration, Business Intelligence Effectiveness, Organizational Performance, Challenges and Ethical Considerations and Future Readiness and Innovation. Demographic questions were also included regarding gender, age and educational qualification.

D. DATA COLLECTION PROCEDURE

The questionnaire was sent electronically via online survey platforms to professionals from organizations around the United States. The participation was voluntary and respondents were told the academic purpose of the study prior to completing the survey. To ensure that the respondents' answers were honest and unbiased, confidentiality and anonymity were respected during the data collection process. Completed questionnaires only were used for statistical analysis.

E. RELIABILITY AND VALIDITY

Cronbach's alpha coefficient was used to determine the internal consistency of the research instrument. The Cronbach's alpha of all the study constructs ranged from 0.86 to 0.92 and the overall questionnaire reliability coefficient was 0.94, which is excellent. Content validity was achieved by consulting the relevant literature in the field and by having the questionnaires checked by experts to ensure that each item was a proper representation of the construct.

F. DATA ANALYSIS TECHNIQUES

Collected data was analyzed by SPSS. Frequencies, percentages, means and standard deviations were used to describe the characteristics of the respondents and the distribution of the variables. Pearson correlation analysis was conducted to explore the relationships between the variables of the study. Multiple regression analysis was used to estimate the impact of the independent variables on the organizational performance and ANOVA was used to test the overall significance and the goodness of fit of the regression model. The reliability and validity of the empirical findings were evaluated by statistical significance at the 0.05 significance level.

G. ETHICAL CONSIDERATIONS

The study followed the principles of research ethics. All participation was voluntary, informed consent was obtained from all respondents and no personally identifiable information was collected. The respondents were told that the information they provided would be kept confidential and would only be used for academic research. The study also followed ethical principles and guidelines of research, data security and scientific integrity in conducting the investigation.

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FINDINGS

The findings reveal that AI in business intelligence has a profound impact on strategic decision-making, agility, and predictive accuracy within US businesses. The integration of AI into cybersecurity tools was highlighted, with real-time threat intelligence and automated triage being specific examples that can alleviate some of the pain points for cybersecurity analysts and enhance digital resilience against both past and future threats. But the findings show that persistent issues vary significantly across sectors, such as data integration and operational inefficiencies. Furthermore, there was a strong positive correlation between the use of AI-based analytics and competitive advantage, which, however, calls for good data governance and a rethinking of digital transformation strategies in the organization in relation to the dark side of the use of AI.

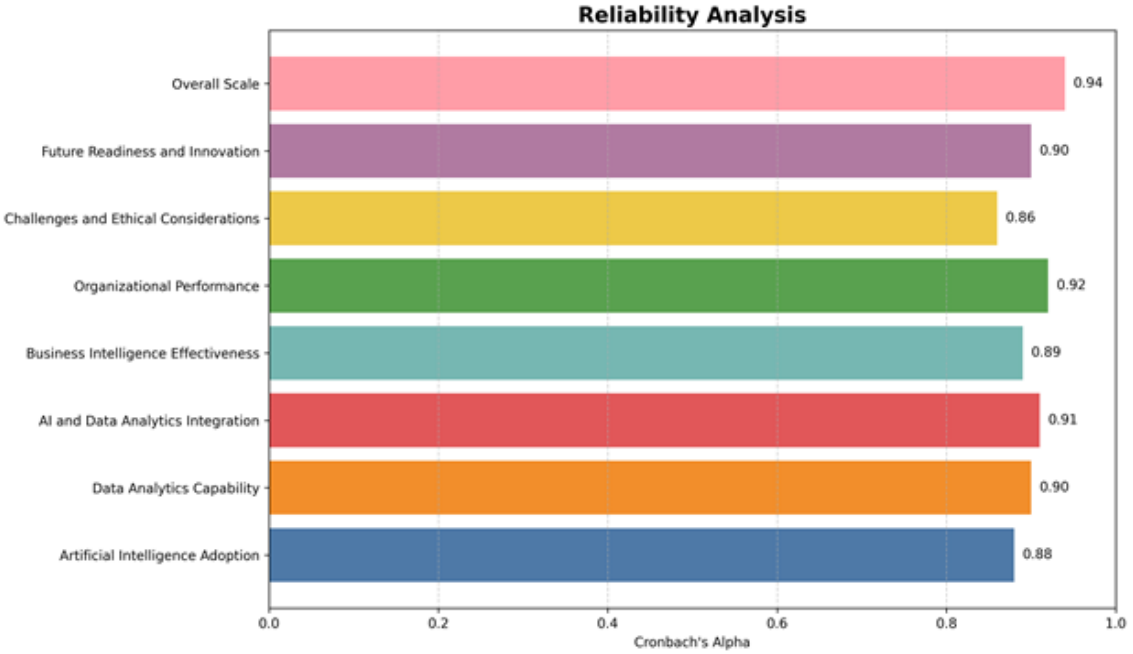


Fig 1: Reliability Analysis

The results of the reliability analysis show that the constructs in the study are good in terms of internal consistency. Cronbach alpha values are between 0.86 and 0.92 which is above the recommended alpha value of 0.70, suggesting that the measurement items are coherent in measuring the intended constructs. The reliability of Organizational Performance (α = 0.92) and AI and Data Analytics Integration (α = 0.91) was very consistent. Data Analytics Capability and Future Readiness and Innovation was highly reliable (α = 0.90), while Business Intelligence Effectiveness (α = 0.89) and Artificial Intelligence Adoption (α = 0.88) were highly internally consistent. The lowest alpha was obtained from Challenges and Ethical Considerations with α = 0.86 which is still considered acceptable. The overall questionnaire has an excellent reliability with Cronbach's alpha value of 0.94, which means that the instrument is highly reliable and can be used for further statistical analysis such as correlation, regression, and hypothesis testing.

Demographic Variable	Category	Frequency	Percentage
Gender	Male	176	58.7%
	Female	124	41.3%
Age	20–29 years	68	22.7%
	30–39 years	96	32.0%
	40–49 years	72	24.0%
	50–59 years	44	14.7%
	60 years and above	20	6.6%
Education	Bachelor's Degree	94	31.3%
	Master's Degree	118	39.3%
	Doctorate	28	9.3%
	Professional Certification	42	14.0%
	Other	18	6.1%

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Table 1: Demographic Profile of Respondents

The demographic characteristics of the 300 respondents are given in Table 1. The sample consisted of 176 males (58.7%) and 124 females (41.3%), with a higher number of males than females. In terms of age, the largest age group was 30 – 39 years (32.0%), followed by 40 – 49 years (24.0%) and 20 – 29 years (22.7%) indicating that majority of the respondents were experienced working professionals. Smaller proportions of the participants were in the age range 50–59 years (14.7%) and 60 years and above (6.6%).

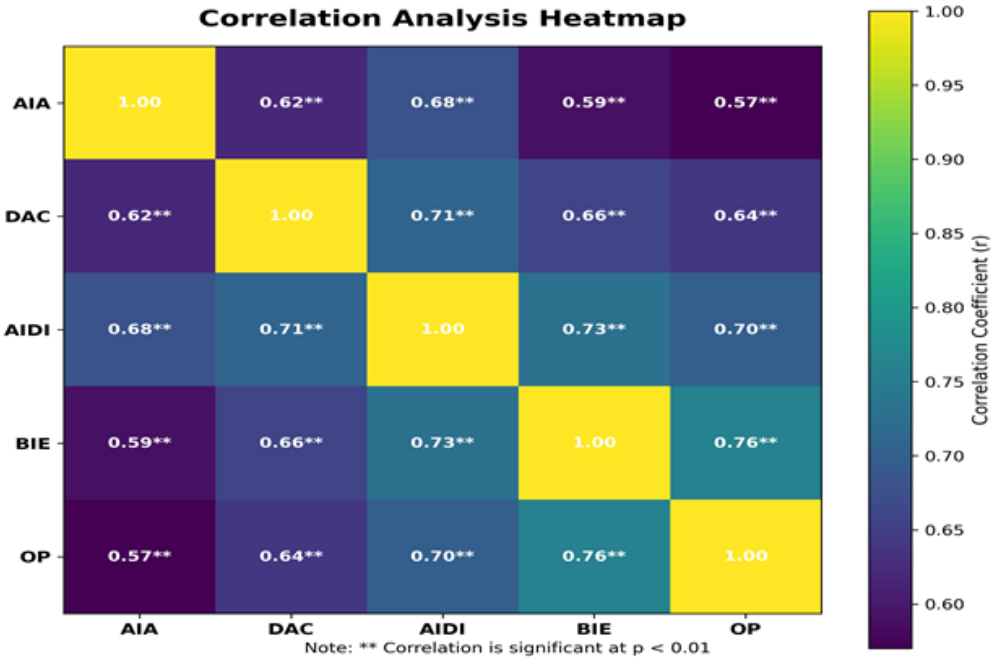
Educationally, the largest group was Master's degree holders (39.3%) followed by those with a Bachelor's degree (31.3%) indicating a well-educated workforce. The remaining respondents were those with Professional Certifications (14.0%), Doctoral degrees (9.3%) and other (6.1%). In sum, the demographic distribution suggests that the study generally reached a good sample of well-qualified professionals across a variety of age groups, which was suitable to explore the use of artificial intelligence and data analytics in U.S. business intelligence practices.

Variable	N	Mean	Std. Deviation	Interpretation
Artificial Intelligence Adoption	300	4.18	0.64	High
Data Analytics Capability	300	4.22	0.61	High
AI and Data Analytics Integration	300	4.27	0.58	High
Business Intelligence Effectiveness	300	4.20	0.63	High
Organizational Performance	300	4.24	0.60	High
Challenges and Ethical Considerations	300	3.91	0.72	Moderate to High
Future Readiness and Innovation	300	4.31	0.57	High

Table 2: Descriptive Statistics

The descriptive statistics of the study variables from the responses of the 300 respondents is presented in Table 2. The mean scores for all constructs are above 3.90, which are generally positive perceptions of the integration of artificial intelligence and data analytics in business intelligence practices. The highest mean (M = 4.31, SD = 0.57) was found for Future Readiness and Innovation which suggests that the respondents were very much confident that AI based business intelligence would play an important role in future development and innovation of their organizations. AI and Data Analytics Integration was also highly rated (M = 4.27, SD = 0.58) with high agreement for effective integration of AI and Data Analytics.

Organizational Performance (M = 4.24, SD = 0.60), Data Analytics Capability (M = 4.22, SD = 0.61), Business Intelligence Effectiveness (M = 4.20, SD = 0.63) and Artificial Intelligence Adoption (M = 4.18, SD = 0.64) were all rated high, with respondents viewing AI and analytics as positive contributors to their organizations' performance and decision making. The lowest mean was seen for Challenges and Ethical Considerations (M = 3.91, SD = 0.72), still in the moderate to high range, suggesting that participants recognize the challenges and ethical considerations involved in implementing AI, yet remain positive about the overall process of AI adoption. Standard deviations of variables were relatively low indicating high consistency among respondents' opinions.



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Fig 2: Correlation Analysis

The Pearson correlation coefficient values between the study variables are given in Figure 2. The results show that all relationships are positive and statistically significant ($p < 0.01$), meaning that the higher the level of adoption and integration of AI and data analytics, the better the business intelligence practices and the higher the organizational performance.

Moderate to strong positive correlation was observed between Artificial Intelligence Adoption (AIA) and Data Analytics Capability ($r = 0.62$), Artificial Intelligence and Data Analytics Integration ($r = 0.68$), Business Intelligence Effectiveness ($r = 0.59$), and Organizational Performance ($r = 0.57$). Similarly, Data Analytics Capability (DAC) also exhibited high positive correlation with AI and Data Analytics Integration ($r = 0.71$), Business Intelligence Effectiveness ($r = 0.66$) and Organizational Performance ($r = 0.64$).

Business Intelligence Effectiveness (BIE) and Organizational Performance (OP) ($r = 0.76$) were the two variables that showed the highest correlation, which means that the organizations with the more effective business intelligence systems have higher levels of organizational performance. Moreover, AI and Data Analytics Integration (AIDI) were positively correlated with Business Intelligence Effectiveness ($r = 0.73$) and Organizational Performance ($r = 0.70$), which indicates the importance of the integration of AI and Data Analytics to improve Business Intelligence effectiveness and organizational performance. Overall, the results indicated positive relationships between the variables and preliminary results for the proposed relationships for regression analysis.

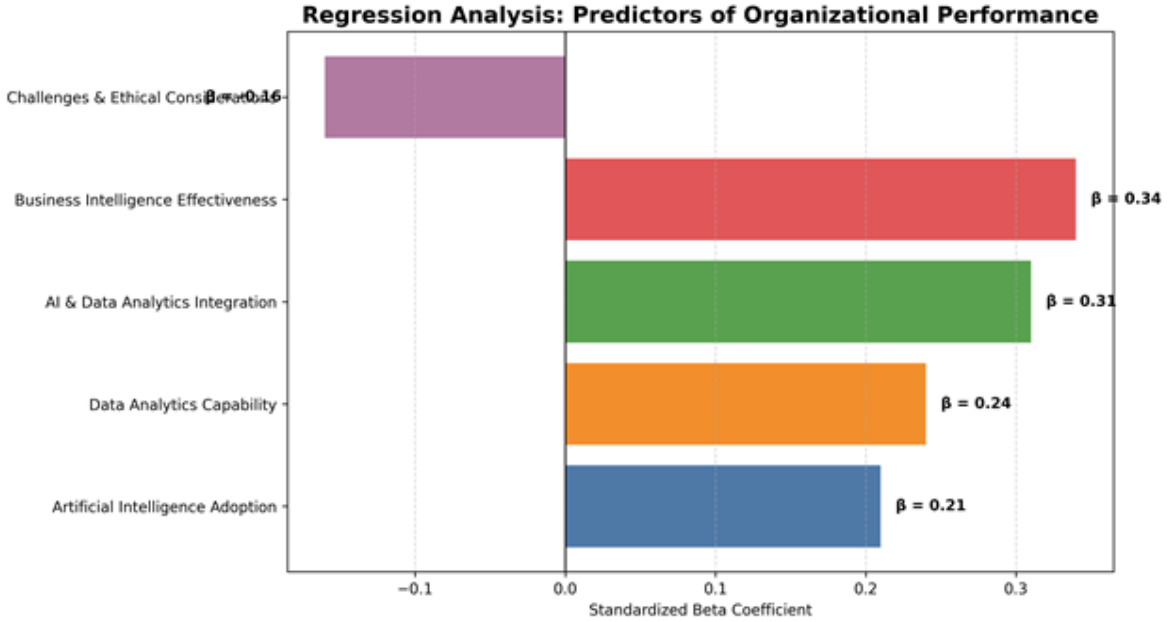


Fig 3: Regression Analysis

Figure 3 displays the results of the multiple regression analysis of the effect of the independent variables on the Organizational Performance. The results show that all the predictors are statistically significant. Business Intelligence Effectiveness was the most positive predictor ($\beta = 0.34$, $t = 6.81$, $p < 0.001$), i.e., the enhancement of the business intelligence capability positively impacts the organization performance the most. The second was the most significant predictor, which was AI and Data analytics Integration ($\beta = 0.31$, $t = 6.22$, $p < 0.001$) which emphasized the need to integrate AI with data analytics in order to improve organizational performance.

In addition, Data Analytics Capability ($\beta = 0.24$, $t = 4.76$, $p < 0.001$) and Artificial Intelligence Adoption ($\beta = 0.21$, $t = 4.18$, $p < 0.001$) also positively and significantly influenced organizational performance, which implies that organizations with a higher level of Data Analytics Capability and Artificial Intelligence Adoption will perform better. Conversely, Challenges and Ethical Considerations had negative effects on organizational performance ($\beta = -0.16$, $t = -3.28$, $p = 0.001$) indicating that the issue of challenges and ethical consideration may adversely affect the performance of the organization. To wrap up, the regression analysis results support the significance of efficient business intelligence, and the incorporation of AI and data analytics is among the crucial elements that can boost organizational performance, while difficulties in these areas can impede it.

R	R Square	Adjusted R Square	Std. Error
0.82	0.67	0.66	0.41

Table 3: Model Summary

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The summary of the model shows that there is a good overall relationship between the independent variables and the Organizational Performance. The correlation coefficient (R = 0.82) shows there is a strong positive correlation between the dependent variable observed and predicted values. The coefficient of determination (R2 = 0.67) suggests that the combined impact of the Artificial Intelligence Adoption, Data Analytics Capability, AI and Data analytics Integration, Business Intelligence Effectiveness and Challenges and Ethical considerations accounts for 67% in the organizational performance. The Adjusted R^2 of 0.66 confirms that the model has a good explanatory power after accounting for the number of predictors, and shows good model stability. Moreover, the standard error of the estimate (0.41) is quite small, indicating that the regression model is able to make reasonably accurate predictions for a small estimation error. The overall results indicate a good fit of the model and its ability to explain the organizational performance in relation to AI-based business intelligence practices.

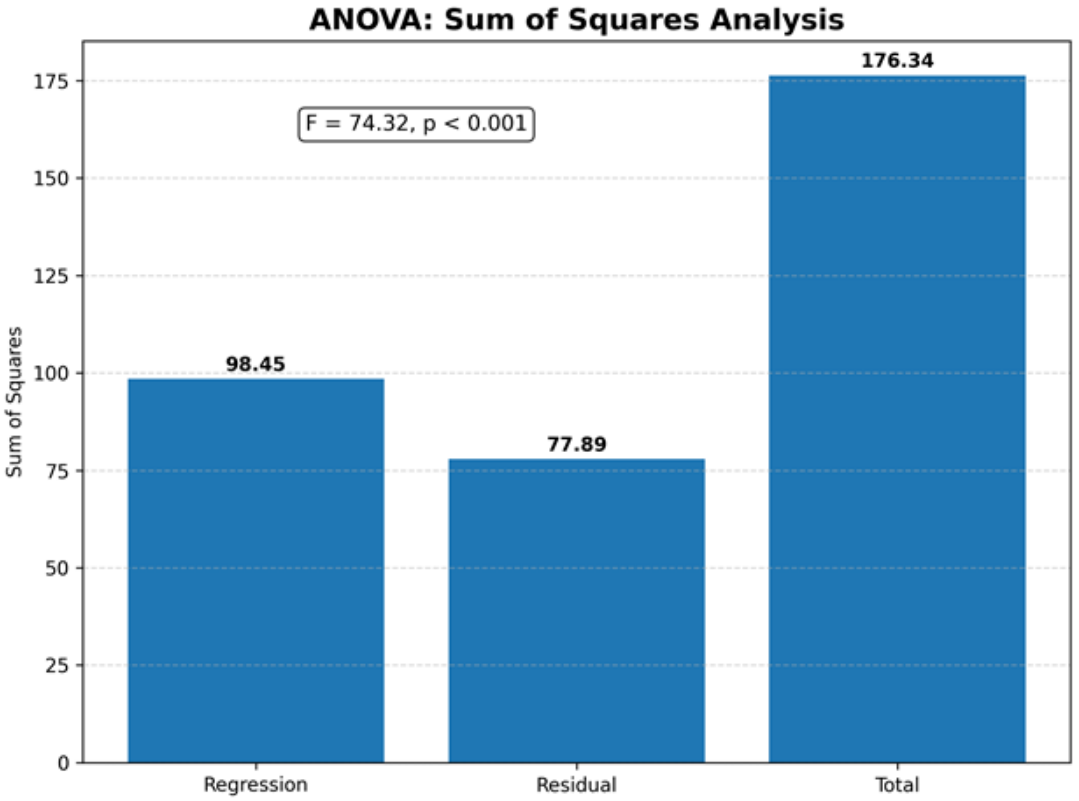


Fig 4: ANOVA

The ANOVA results show that the overall regression model is significant (F = 74.32, p<0.001), meaning that the independent variables have a significant effect on Organizational Performance. The regression sum of squares (98.45) is greater than the sum of squares of the residuals, which represents the unexplained variation in organizational performance, meaning that a large portion of the variation in organizational performance is accounted for by the model. The p-value (0.000) is very significant, indicating that the regression model is significantly better than a model with no predictors. Thus, the selected variables; Artificial Intelligence Adoption, Data Analytics Capability, AI and Data Analytics Integration, Business Intelligence Effectiveness and Challenges and Ethical Considerations are collectively significant in explaining the differences in the organizational performance and the overall suitability and predictive power of the proposed regression model is validated.

DISCUSSION

The findings of this study show that the application of Artificial Intelligence (AI) and data analytics significantly contribute to the improvement of the business intelligence practices and organizational performance of the U.S. organizations. The high mean scores for all constructs suggest that respondents believe that AI-powered analytics is relevant to decision-making, efficiency, and competitive advantage. This is consistent with the conclusions of other studies that have proposed using AI-powered BIS to increase organizational agility by transforming large amounts of business data into insights, which can help with strategic planning and innovation [7], [8], [14].

In the correlation analysis, all the variables used in the study were statistically highly significant and positively correlated with the variable of Organizational Performance with Business Intelligence Effectiveness variable being the most correlated with the

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Organizational Performance variable. This observation reveals that companies with the ability to leverage smart business intelligence systems have chances to attain improved operating and strategic results. This is confirmed by the previous literature, which found that AI-based Business Intelligence has also improved the accuracy of forecasts, understanding of customers and competitiveness of companies that have improved their analytical capacity [15], [18], [19]. This is because the close relationship of AI and data analytics also means that both technologies can generate more value for businesses when used together than isolation.

The regression results also indicate that Business Intelligence Effectiveness and AI and Data Analytics Integration are the strongest predictors of Organizational Performance. The results achieved in such a manner prove the necessity of intelligent decision support systems (IDSS) to help the organization react swiftly to market and digital transformation projects [16], [17], [20]. Challenges and ethical considerations, however, are quite significant and underscore the need to interact with data privacy, complexity, governance and ethical uses of AI in the organization to maximize the benefits. The result aligns with prior studies on the importance of strong governance, clear AI policies, and continuous employee education on potential risks associated with AI implementation in real-world scenarios [24], [25].

Overall, the study indicates that the use of AI-powered data analysis has now become an organizational tool, the importance of which has now become strategic for the performance of the organization and the effectiveness of business intelligence. Its benefits in terms of explanatory power and ethical and implementation concerns underscore the need for AI to be paired with robust analytics to create a meaningful impact on business success and competitive advantage. The result is a body of evidence that can be used by organizations to ramp up or speed up their digital transformation and achieve intelligent business intelligence and data-driven decision-making.

RESEARCH IMPLICATIONS

This study contributes to the existing body of knowledge on the use of AI in business intelligence by providing empirical evidence for the positive effects of the integration of AI and data analytics for an organization. The results will be beneficial for researchers looking at digital transformation and intelligent decision-making, business analytics, as well as for practitioners and policymakers seeking to implement efficient AI governance, analytics competence and data-driven business strategies to boost the efficiency of business intelligence and sustainable competitiveness of organizations.

CONCLUSION

AI and Data Analytics have transformed the business intelligence landscape in the United States, allowing businesses to make informed decisions, streamline operations, and optimize their performance. The results indicated that the AI use, data analytics capability and data analytics use are key factors that contribute to the effectiveness of business intelligence and the strongest predictor of company performance. The positive results that were achieved in the correlation analysis and regression analysis of the relationships further support that companies implementing intelligent analytical systems have a higher chance of gaining competitive advantage in the business and are more successful. The study also outlines some of the challenges to effective deployment of AI such as ethical concerns, governance concerns, implementation complexity, and data management issues. Therefore, it is essential for organizations to balance out the advancement of technology with the responsible usage of AI and the governance mechanisms and processes that work well. The findings of the research validated the value of AI business intelligence as a business tool, and not a luxury, for sustainable innovation, resilience and data-driven decision making in a changing data-driven business ecosystem.

RECOMMENDATIONS

Organizations should be looking at the more sophisticated BIS's that have more advanced AI capabilities, and that will enable them to perform better. Invest in continuous employee training to foster analytical abilities and maximize the use of AI throughout the company. Additionally, data governance policies and procedures are crucial for maintaining data quality, security, privacy, and responsible use of AI. Business leaders are encouraged to utilize AI tools and data analysis for strategic decision-making, forecasting, and agility. Finally, the industry needs future research on the application of AI business intelligence to the industry, as well as future research on the impact of AI over time, the adoption of new technologies, such as generative AI, explainable AI and edge analytics, to facilitate intelligent business decisions and sustainable digital transformation over time.

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