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Performance Evaluation of SigniTeq Services Private Limited, Thiruvanthapuram

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Abstract

This study examines client project performance at Signiteq Services Private Limited using business analytics. It aims to evaluate key factors such as cost efficiency, time management, resource utilization, quality, and client satisfaction. Using a descriptive research design, data were collected from employees and company records and analyzed through basic statistical tools. The findings show that business analytics improves project monitoring, decision-making, scheduling, and resource use, leading to higher client satisfaction, although challenges like limited expertise and data delays exist. Overall, the study concludes that adopting business analytics enhances project performance through better planning, control, and continuous evaluation.

Keywords: Business Analytics, Project Performance, Cost Efficiency, Resource Utilization, Quality Management, Client Satisfaction, Decision-Making, Project Monitoring

Introduction

In today's competitive and dynamic business environment, project performance plays a vital role in determining organizational success, particularly in service and technology-driven industries. It reflects how effectively a project meets its objectives within constraints such as cost, time, scope, and quality. Traditional project management approaches often lack real-time insights, making it difficult to manage complex projects efficiently. However, with the integration of business analytics, organizations can leverage data-driven techniques to monitor key performance indicators, predict outcomes, and optimize resource utilization. This analytical approach enhances decision-making, improves transparency, and increases overall project efficiency. Therefore, applying business analytics to evaluate client project performance is essential for achieving better results and sustaining organizational growth.

Literature Review

Oesterreich, Thuy Duong, Eduard Anton, and Frank Teuteberg. (2022)

The study analyzes how business analytics (BA) influences project performance using data from multiple countries. It shows that organizational and human factors are more important than technology alone. Skilled employees, strong leadership, and a data-driven culture play key roles in success. Effective use of BA depends on organizational readiness and managerial expertise. Overall, human capabilities drive better efficiency, quality, and project performance.

Schmitt, Marc. (2023)

The study examines deep learning in business analytics, highlighting challenges like high cost, low transparency, and skill gaps. It finds that for structured data, gradient boosting models often outperform deep learning. Overall, deep learning should be used as a complementary tool, with proper model selection crucial for project success.

Hasan, MD Rokibul, Rejon Kumar Ray, and Faiaz Rahat Chowdhury. (2024)

The study focuses on predicting employee performance using business analytics and machine learning by combining data from multiple sources. It explains key steps like data processing, feature selection, and model evaluation for accurate results. The findings show that it improves talent management, resource allocation, and decision-making. Overall, it boosts productivity, timely project delivery, and project success.

Salazar, Angel, and Martin Kunc. (2025)

The study shows that Generative AI improves business analytics research by speeding up literature review and summarization. It helps researchers focus more on analysis rather than manual tasks. Overall, it increases efficiency but needs further validation and careful use.

Gonçalves, Marco, Cátia Salgado, Amaro de Sousa, and Leonor Teixeira. (2025)

The study applies Business Intelligence using Power BI and the CRISP-DM approach to improve maritime port operations. It shows that dashboards and KPIs help monitor logistics, detect issues, and support real-time decision making. Overall, it enhances efficiency, reduces congestion, and improves project performance.

Research Methodology

The research methodology outlines the systematic approach used to conduct the study, including data collection, analysis, and interpretation. It typically involves selecting a suitable research design, identifying sources and applying relevant statistical tools. This ensures the research is structured, reliable, and aligned with the study's objectives.

Objectives

- To evaluate the effectiveness of business analytics in enhancing decision-making processes within project management.
- To provide suggestions and recommendations for enhancing project performance based on analytical findings.

Limitations

Data collected through questionnaires and interviews may be influenced by subjective perceptions or response biases of the respondents.

The study is limited to a specific set of client projects, which may restrict the generalizability of the findings to other organizations or industries.

Data Analysis and Interpretation

Ranking Analysis

Ranking analysis is a statistical technique used to determine the relative importance of different factors based on respondents' rankings. In this study, it is used to identify key factors influencing project performance through business analytics. By analyzing the ranked responses, the method highlights which factors are most significant in improving overall project performance.

Table 1 Performance Evaluation

Factors	Total Score	Mean Score	Final Rank
Cost Control	9362	62.54	I
Timely Completion	9563	61.92	II
Quality Improvement	8816	57.24	III
Risk Identification & Management	8036	52.18	IV
Resource Allocation Efficiency	7100	46.10	V

Source: Primary Survey

Table 2 Score Calculation

	Ranks				
Factors	**1**	**2**	**3**	**4**	**5**
Cost Control	48	40	30	20	16
Timely Completion	42	45	28	25	14
Quality Improvement	30	32	40	28	24
Risk Identification & Management	20	25	32	40	37
Resource Allocation Efficiency	14	12	24	41	63

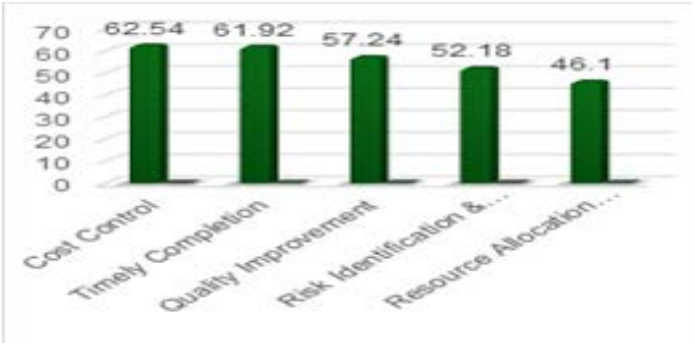
Source: Primary Survey

The Garrett ranking analysis reveals that Cost Control obtained the highest mean score and was ranked first, indicating that respondents consider cost management as the most important factor influencing project performance through business analytics. Timely Completion secured the second rank, followed by Quality Improvement, Risk Identification and Management, and Resource Allocation Efficiency. The findings suggest that business analytics plays a significant role in improving project performance by enabling better cost control and ensuring timely completion of projects.

Ranking Result

The above graph illustrates the ranking results of factors influencing project performance through business analytics based on the mean scores obtained from the Garrett ranking analysis. It is observed that Cost Control has the highest mean score of 62.54, (I Rank) indicating that respondents consider it the most important factor in improving project performance. Timely Completion holds the second position with a mean score of 61.92, (II Rank) showing that completing projects within the scheduled time is also a major priority. Quality Improvement is ranked third with a mean score

of 57.24, (III Rank) highlighting the importance of maintaining high standards in project outcomes. Risk Identification and Management secured the fourth rank with a mean score of 52.18, (IV Rank) while Resource Allocation Efficiency received the lowest mean score of 46.10, (V Rank) ranking fifth. Overall, the graph indicates that effective cost management and timely completion are the key areas where business analytics contributes significantly to enhancing project performance.



Chi-Square Test

The Chi-Square Test is used to examine the association between two categorical variables. In this study, it is applied to analyze the relationship between demographic factors and respondents' opinions on business analytics and project performance. The test compares observed and expected frequencies to determine whether a significant relationship exists. The level of significance adopted is 5%. If the calculated value exceeds the table value, the null hypothesis is rejected.

Table 3 Observed Frequency

Age Group / Opinion	SA	A	N	D	SD	Row Total
Below 25 (28)	8	10	4	4	2	28
25–35 (64)	20	24	8	7	5	64
36–45 (42)	14	15	5	5	3	42
Above 45 (20)	7	8	4	1	0	20
Column Total	49	57	21	17	10	154

Source: Primary Survey

Table 4 Expected Frequency

Age Group	SA	A	N	D	SD
Below 25	8.91	10.36	3.82	3.09	1.82
25–35	20.37	23.68	8.73	7.06	4.16
36–45	13.36	15.54	5.73	4.64	2.73
Above 45	6.36	7.40	2.72	2.21	1.30

Source: Primary Survey

Table 5 Chi-Square Calculation

Age Group	SA	A	N	D	SD	Row x^2
Below 25	0.09	0.01	0.01	0.27	0.02	0.40

25–35	0.01	0.00	0.06	0.00	0.16	0.23
36–45	0.03	0.02	0.09	0.03	0.03	0.20
Above 45	0.06	0.05	0.59	0.66	1.30	2.66

Source: Primary Survey

The above table presents the calculated Chi-Square (χ^2) values for each age group with respect to their opinion on timely completion of projects through business analytics. It is observed that the highest contribution to the Chi-Square value comes from the Above 45 years age group (Row χ^2 = 2.66), followed by Below 25 years (0.40), 25–35 years (0.23), and 36–45 years (0.20). However, the overall calculated Chi-Square value ($\chi^2 = 3.49$) is less than the table value of 21.026 at 5% level of significance with 12 degrees of freedom.

Since the calculated value is lower than the critical value, the null hypothesis is accepted. Therefore, there is no significant association between age group and opinion regarding timely completion of projects through business analytics. This indicates that respondents across different age groups share similar perceptions about the contribution of business analytics to timely project completion.

Findings

Majority of respondents are male, aged 25-35, with graduation-level education and 1-5 years of experience.

- Business analytics improves decision-making in project management.
- It enhances project planning, monitoring, and control.
- It improves cost estimation accuracy and reduces project delays, ensuring timely completion.
- It helps in early identification and management of project risks.
- It improves resource allocation efficiency and team coordination.
- It enhances overall project performance, with cost control identified as the most important factor.

Suggestions

- Majority of respondents are male, aged 25-35, with graduate qualifications and 1-5 years of experience.
- Business analytics improves decision-making and supports better project planning and monitoring.
- Analytics tools enhance cost estimation accuracy and help reduce project delays, ensuring timely completion.
- Business analytics helps in early identification and effective management of project risks.
- It improves resource allocation efficiency and strengthens coordination and communication among teams.
- Analytics contributes to improved project quality and overall project performance.
- Cost control is identified as the most important factor influencing project success, followed by timely completion and quality improvement.

Conclusion

The present study was conducted to analyze the impact of business analytics on project performance. The findings of the study reveal that business analytics plays a significant role in improving various aspects of project management such as cost control, timely completion, quality

improvement, risk management, and efficient resource allocation. The analysis of responses indicates that most respondents believe that analytics tools help organizations make better decisions, monitor project progress effectively, and improve overall project efficiency. The study also found a positive relationship between cost estimation accuracy and timely completion of projects, highlighting the importance of accurate financial planning in project management. Furthermore, the Garrett ranking analysis shows that cost control and timely completion are considered the most important factors influencing project performance through business analytics. Overall, the study concludes that the effective implementation of business analytics enables organizations to enhance project performance by improving planning, monitoring, decision-making, and risk management. Therefore, organizations should increasingly adopt advanced analytics tools and promote a data-driven culture to achieve better project outcomes and long-term organizational success.

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