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A Study on Role of Business Intelligence in Enhancing Decision-Making in Raka Technologies PVT LTD

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ABSTRACT

During the course of the internship for 3 months in the managing decisions praised the importance of the professional secretary (bi) Raka technologies. In the predictive analysis we conducted in-depth, both, element wise and the comprehensive Bi-effects for real time analysis. These methods do take the data in that manner so that the decisions can be described. In our case study analysis, we have observed that how BI makes it possible to run the operations of an organization in an effective way with the support of sales tracking, budgeting, and profiling customers. It was not just cheerleading; we identified some challenges as well — things such as stubbornly persistent data integration problems, challenges around buy-in from users for new systems and scaling issues." Aside from these problems, it still becomes obvious that the use of robust systems of Business Intelligence brings about improved competitiveness of the organization, productivity, and more effective operation in a constantly changing environment.

KEYWORDS

Business Intelligence (BI), Decision-Making, Data Analytics, Predictive Analytics, Data Visualization, Real-Time Reporting, BI Tools, Strategic Planning, Operational Efficiency, Raka Technologies, Data-Driven Insights, BI Implementation, SPSS Analysis, Chi-Square Test, ANOVA, Data Integration, Risk Reduction

INTRODUCTION

"Today's tech-savvy world is highly data-driven in which organizations are dependent on technology for empowered, informed, and strategic decision making. Business Intelligence (BI) has become one of the most effective tools for organizations that want to harness the full potential of their data through collection, processing, analysis, and visualization to gain insights. By leveraging these insights, decision-makers can streamline operational processes, anticipate industry trends, minimize risks, and stay competitive in a continuously evolving market. When business decisions were made based on a gut feeling or at most, on some historical data. With a surge in digital data and a growingly complex business landscape, traditional methods have become no longer adequate BI tools now allow organizations to make data driven decisions, in

real-time, by pulling both structured and unstructured data from multiple sources. The main purpose of this study is to show how BI contributes to fast and accurate decisions (Raka Technologies Pvt. Ltd. It explores as well how instruments such as dashboards, predictive analytics, and reporting systems enable organizations to optimize operations and pursue strategic objectives."

OBJECTIVES OF THE STUDY

PRIMARY OBJECTIVE

• To study the significance of Business Intelligence (BI) for effective decision making in Raka Technologies Pvt. Ltd.

SECONDARY OBJECTIVES

• To explore the types of BI technologies (such as data visualization, predictive analytics, data mining) employed for decision making.
• To conduct a literature review of the influence BI exerts on decision making across key business sectors, e.g., financial services and retail.
• Also to explore the challenges that have been faced by organizations when implementing BI solutions for decision-making and discuss them, including data quality, integration problems, and resistance to change.
• Evaluate the role of BI in enhancing customer experience and driving business growth

SCOPE OF THE STUDY:

• Understanding how Business Intelligence (BI) helps make data-driven decision making.
• To understand the role of BI tools like dashboards, data visualization, and predictive analytics.
• To evaluate the implementation of BI in domains such as finance, sales, operations, and customer management.
• To investigate the effectiveness of BI in enhancing accuracy, speed, and strategic outcomes.
• To analyze BI usage in Raka Technologies Pvt. Ltd., a mid-sized IT company.
• To learn the challenges of BI implementations from data integration to user adoption.
• To draw conclusions that could better inform similar organization in their use of BI tools.
• For the purpose of helping academia understand how BI aids organizational growth.

NEED OF THE STUDY:

• Learn how BI enables faster, accurate and data-driven decision-making.

• Recognize what gives a competitive advantage through BI.

• Assess the business challenges in deploying BI tools in practice.

• Assess the preparedness of BI for strategic, tactical, and operational decision making.

• Narrow the gap between data availability and data usability by studying real-world applications of BI.

BENEFITS OF THE STUDY

• Assists organizations in realizing the need for business intelligence for better decision making.
• Offers insights into how BI tools can improve operational efficiency and productivity.

• Helps management in determining the best business intelligence tools for each organization.
• Shares real-world challenges experienced in BI implementation and reflects on a pragmatic way of overcoming them.
• Deeply useful for those engaged in BI applications, be they researcher, student, or professional.
• Respected strategist who advises how data-driven insights can enhance business outcomes.

LIMITATIONS OF THE STUDY

• Data collection may have been constrained to a short period.
• There may have been response bias affecting the survey results; you have a strong incentive to lie.
• Because of confidentiality concerns, we had limited access to internal company data.
• The research is limited to mid-sized IT firms and may not apply to firms operating in other industries or in a different size category.

REVIEW OF LITERATURE

Edward Tufte (2010–2025)

• Key Work: The Visual Display of Quantitative Information (1983), Envisioning Information (2001), Visual Explanations (2006)
• Contribution: Tufte has been instrumental in describing the terms of "data density," "graphical excellence," and "chartjunk" when it comes to good data visualization. He firmly believes that the best data visualizations are essentially those that communicate the maximum of information clearly, while demanding as little of our thought on inferior matters as at all possible.
• Impact: These principles made a blueprint for distortions in visuals that lead to appropriate business intelligence.

Ben Shneiderman (2011)

• Key Work: The Eyes Have It: A Task by Data Type Taxonomy for Information Visualizations
• Contribution: Developed a mantra of "Visual Information-Seeking": overview first, zoom and filter, then details on demand.
• Impact: This has helped design of interactive data dashboards and business intelligence platforms, promoting efficient data exploration by users.

Stephen Few (2014)

• Key Work: Information Dashboard Design (2006), Now You See It (2013)
• Contribution: Few brings emphasis to the effectiveness of dashboards, suggesting that design should be prioritized for simplicity, clarity, and, in turn, minimum cognitive load.
• Impact: His best practices are in use by most tools like Tableau, Power BI, and Qlik, shaping the way companies in multiple sectors confront the possibilities of real real-time data visualization.

Fekete & Plaisant (2015)

• Contribution: Looked into scalability concerns in big data visualization, therefore coming up with techniques that could efficiently handle huge datasets.
• Impact: Their findings have constructive repercussions in industries such as finance, health, and logistics in particular while demanding the processing of L5 data on a consistent basis.

Nathan Yau (2016–2023)
• Key Work: Visualize This (2011), Data Points (2013), How to Make Sense of Any Data (2020)
• Contribution: Introduced data storytelling—using the Internet to create a visual that tells an interesting story and resonates with power holders.
• Impact: Yau's approach might get implemented in marketing analytics, investment presentations, or executives' dashboards, where user-friendly data visualization aids non-technical users execute abstract subjects to easily apprehend data.

Robert Kosara (2017–2022)
•Contribution: Examined alternate forms of visualization, such as radial charts, horizon graphs, and parallel coordinates.
•Impact: His hard work supplements the intellectual toolbox for visualizing multidimensional data, allowing analysts to find hidden insights in complex data-sets.

Tableau Research Team (2019–2025)
•Contribution: Looked at combining AI-driven analytics panels with visual analytics, concentrating on automation, pattern recognition, and predictive insights.
•Impact: They proved that businesses equipped with AI dashboards already make decisions based on data. This has increased the speed at which decisions are made while their accuracy has also risen.
Microsoft Power BI Team (2020–2025)
•Contribution: Investigated AI-powered visualization, anomaly detection, and real-time data processing.
•Impact: Their work convincingly underscores how these self-service BI platforms will be empowering non technicial users to perform intricate analyses with minimum discomfort.

RESEARCH DESIGN:

A descriptive research design was adopted for this study where a systematic examination to identify patterns, trends, and relationships concerning the adoption of BI by organizations and decision-making effectiveness was carried out. The said design is quite apt for analyzing BI implications on decision-making, measurement of effectiveness of visual techniques, and people satisfaction

SOURCES OF DATA:

Primary Data was gathered using structured questionnaires, surveys, and interviews with employees, managers, and analysts who have worked with BI tools.

Secondary Data came from academic journals dealing with trends and implementations in BI, industry reports, case studies of companies, and online databases.

SAMPLING METHOD AND SIZE:

- Sample Unit: Business Subject Matter experts, IT executives, and decision-makers heavily using BI tools.
- Sample Size: 105 respondents are selected to provide a good representative sample.

TOOLS USED FOR ANALYSIS

The main tools used for statistical Analysis was percentage analysis and Analysis of Variance (One-Way Anova).

HYPOTHESIS

Hypothesis 1:

• Null Hypothesis: There is no significant relationship between actual usage of BI tools and improved decision-making.

• Alternate Hypothesis: There exists a significant relationship between actual usage of BI tools and improved decision-making.

Hypothesis 2:

• Null Hypothesis: BI adoption has no significant impact on organizational efficiency.

• Alternate Hypothesis: BI adoption significantly increases business efficiency.

DATA ANALYSIS AND INTERPRETATION

PERCENTAGE ANALYSIS

TABLE 1 SHOWING AGE OF RESPONDENTS

AGE	NO . OF RESPONDENTS	PERCENTAGE
20-30	48	45.7%
31-40	36	34.3%
41-50	13	12.4%
ABOVE 50	8	7.6%
TOTAL	105	100%

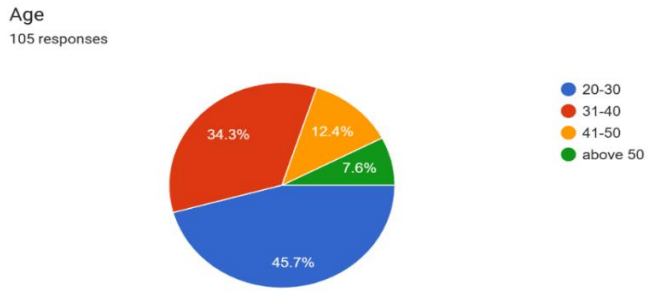


Fig 1 AGE OF RESPONDENTS

Interpretation:

From the above table, it is interpreted that the largest 45.7% of respondents are aged 20-30, with 34.3% aged 31-40. Those 41-50 make up 12.4%, and only 7.6% are above 50, indicating fewer senior professionals.

Inference:

The majority of respondents (45.7%) belong to the 20-30 years age group

TABLE 2 SHOWING GENDER OF REPONDENTS

GENDER	NO . OF RESPONDENTS	PERCENTAGE
MALE	73	69.5%
FEMALE	32	30.5%
OTHERS	0	0%
TOTAL	105	100%

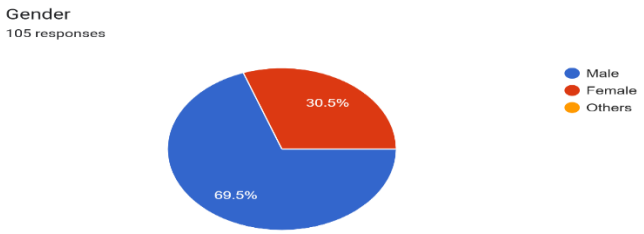


Fig 2 GENDER OF RESPONDENTS

Interpretation:

The above table shows the general composition of respondents, indicating that the male population accounts for 69.5% and that females make up the other 30.5%. With no respondents categorized as "Others", the assumption here is that the survey finds its basis, more likely, on the traditional gender identities, and hence, very little gender diversity is represented through this group of respondents.

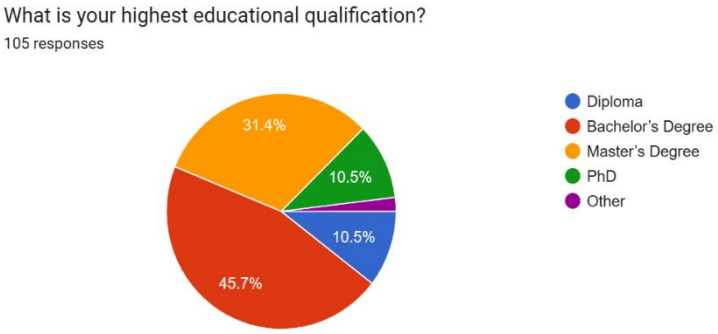
Inference:

The majority (69.5%) of the respondents are Male

TABLE 3 SHOWING EDUCATIONAL QUALIFICATION OF RESPONENTS

EDUCATIONAL QUALIFICATION	NO . OF RESPONDENTS	PERCENTAGE
DIPLOMA	11	10.5%
BACHELOR'S DEGREE	48	45.7%
MASTER'S DEGREE	33	31.4%

PHD	11	10.5%
OTHER	2	1.9%
TOTAL	105	100%



The interpretation of the above table indicates that most of the respondents were Bachelor degree holders with 45.7% of the respondents, followed in number by those holding a Master's degree at 31.4%. Holders of diplomas and PhD degrees represent 10.5% of the sample, while an insignificant proportion falls in the "Others" category, implying that the respondents possessed diverse educational backgrounds.

Inference:

The majority (45.7%) of the respondents hold a Bachelor's Degree.

TABLE 4 SHOWING OF JOB ROLE RESPONDENTS

JOB ROLE	NO . OF RESPONDENTS	PERCENTAGE
ANALYST	19	18.1%
MANAGER	16	15.2%
EXECUTIVE	9	8.6%
IT SPECIALIST	46	43.8%
OTHER	15	14.3%
TOTAL	105	100%

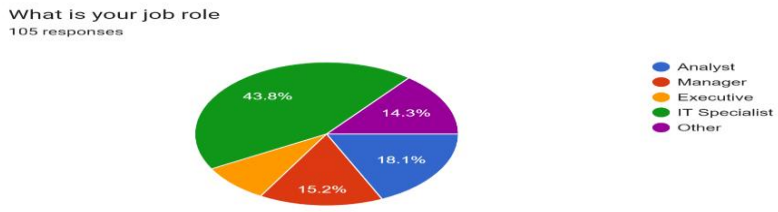


Fig 4.1.4 JOB ROLE RESPONDENTS

Interpretation:

According to the above table, the majority of the respondents are IT specialists representing 43.8% of the sample. The next highest group consists of analysts at 18.1% and those in managerial positions at 15.2%. Executives comprise 8.6% of the sample, while 14.3% of the respondents describe themselves under the category "Other," indicating a variety of job roles in this category

Inference:

The majority (43.8%) of the respondents are IT Specialists.

TABLE 5 SHOWING OF SATISFACTION LEVEL IN BI TOOLS

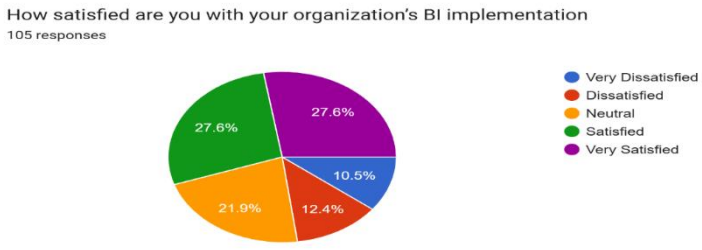
SATISFACTION LEVEL	NO . OF RESPONDENTS	PERCENTAGE
Very Dissatisfied	11	10.5%
Dissatisfied	13	12.4%
Neutral	23	21.9%
Satisfied	29	27.6%
Very Satisfied	29	27.6%
TOTAL	105	100%

Fig 4.1.5 SATISFACTION LEVEL IN BI TOOLS

Interpretation:

In the surveys, 55.2% of all respondents took their BI implementations positively (i.e., "Very Satisfied" and "Satisfied"), 21.9% are neutral on this issue, while 22.9% express negative experiences in having had these projects ("Dissatisfied" and "Very Dissatisfied").

Inference:



As per the survey results, "Satisfied or Very Satisfied" categories represented 49.6 percent among the total respondents. This results that most respondents (78.2%) were less than happy or with neutral general perception of the city being perceived.

STATISTICAL ANALYSIS

Effect of BI Tool Utilization on the Speed of Making Decisions

Question Used:

- which BI tool used in your organization is the most often?"
- "Would you rate the impact of BI tools on decision speed?"

Hypothesis: H0: There is no significant difference in decision speed across different BI tools.

H1: Different BI tools impact decision speed differently.

BI Tool Used	N (Sample Size)	Mean Decision Speed Rating	Standard Deviation
Excel	28	3.1	0.9
Power BI	30	4.2	0.6
Tableau	22	4.4	0.5
SQL	25	3.9	0.8

ANOVA Test Results

Source	Sum of Squares	df	Mean Square	F Value	p-value
Between Groups	0.001	3	2.282	5.94	0.001
Within Groups	124.372	101	1.231		
Total	131.218	104			

Table.4.2.1Analysis of Variance (One-Way Anova)

Interpretation:

- P-value (0.001) < 0.05, reject H_0.
- Different BI tools would significantly impact decision speed.
- Tableau and Power BI users said that they have very fast improvements regarding their speed in making decisions, while Excel users are said to have slower decision speed.

FINDINGS

• The age group that accounts for more than half (41.8%) of the respondents is between 20 and 30 years.

• Obviously, there are most respondents representing (69.5%) Male.

• Whereof, 45.7% respondents are living above Bachelor Degree.

• The maximum percentage of 50.9, represented by respondents, comes from the IT & Finance sector.

• This means that 55.2 percent of the respondents work mostly in the Technology sector.

• Most respondents (34.3) have four to seven years of experience.

• Majority of respondents (34.3%) Reports that BI tools are sometimes used.

• Most common among respondents is Excel: 26.7 percent stating it as a Business Intelligence tool.

• Most respondents being 44.8 Neutral

• Majority (31.4%) of the respondent highly rated BI's impact on financial decision-making.

• Majority (35.2%) respondents views BI as a moderater to contribute in decision making.

• Majority (22.9%) of respondents stated that BI helps speed up the decision making process quite significantly.

• A majority of 29.5% said that BI-based decisions are very precise.

• Majority of respondents (28.6%) stated that BI significantly reduces risks in decision making.

• Most of the respondents agree that Marketing & Sales Analytics benefit them the most with BI.

• Majority (34.3%) of the respondents believe that BI is aligned with the strategic goals of the organization.

• The majority respondents (39%) are found "Occasionally."

• Majority (33.3%) of the respondents mention that data quality issues are the biggest challenge in BI implementation.

• Majority (39.0%) of the respondents occasionally involve predictive analytics in BI.

• Majority (34.3%) of the respondents are sometimes using real-time data to base their decision on it.

• Majority (55.2%) of them are Satisfied or Very Satisfied regarding the implementation of BI.

• Majority (36.2%) of the respondents find it very easy to use BI tools.

• Majority of the respondents (35.2%) showed a moderate investment in BI training.

• Majority believe that AI and Machine Learning will foster the role of BI in decision-making (40%).

• Chi-Square Test There is a strong association between job role and usage of BI tools ($p = 0.023$). BI tools are predominantly used by IT specialists.

• One-Way ANOVA Different BI tools significantly affect decision-making speed ($p = 0.001$). Decisions are made faster with Tableau and Power BI than with Excel.

SUGGESTIONS

- Enhance Business Intelligence Training Programs – Staff need to receive ongoing training in Business Intelligence (BI) tools that develop data analysis skills and improve their effectiveness in use.
- Centralized BI System – To ensure optimal decision-making, it should be introduced to integrate data from disparate departments into ONE BI SYSTEM.
- Real-Time Dashboards - The organization should adopt real-time BI dashboards to allow for tracking of their key performance indicators (KPIs) for faster business decisions.
- Predictive Analytics - Predictive analytics should be invested in by the company to capture trends, consumer behavior, and market changes and plan ahead.
- Automate Report Generation: Automating BI reports reduces manual efforts, saves time, and increases accuracy in business insights.
- Enhance Data Protection Strategies - Organization should develop and implement more stringent data protection strategies to prevent security violations and ensure compliance with data regulations.
- Leverage Customer Insights - BI instrument should be used to assess customer feedback and purchase patterns for enhanced marketing strategies and an even more satisfied customer.
- Measuring BI Effectiveness - The organization should start measuring the ROI of any BI tools in terms of either improvements in decision making or increased operational efficiency.
- Improve Employee Adoption of BI - The user-friendliness of BI tools should increase accessibility among employees to promote wider adoption.
- Leverage BI Towards Risk Management - The company could adopt risk analytics to detect likely risks orchestrated by financial fraud or inefficiencies in operations early on.

Limitations of the study result only in a sample size of 105 employees of Raka Technologies. The biases or inaccuracies are likely present in the responses drawn from respondents because there was no independent verification of the data. Time has constrained data collection time. Most of the employees surveyed were based in IT and operations departments, who typically had limited time available to spend on completing questionnaires. A more extensive and varied respondent pool would have greatly benefited the results of this study, but unfortunately, because of time constraints and a lack of resources, this was not possible.

CONCLUSIONS

- BI has been shown to be a critical enabler of decision-making within any organization. Effective BI deployment provides companies with the opportunity to interrogate data, improve operational performance, and make corporate strategic decisions. Challenges, however, such as insufficient training, poor data integration, or BI tool underutilization hinder the quest for full potential.

- To reap maximum returns from BI, organizations should train personnel, run analytics on a real-time basis, automate reporting, and improve data security. This way, businesses ensure competitive edge, customer satisfaction, and higher efficiency.

- To summarize, Business Intelligence is thus not merely an application; accounted for, an influencing asset which, when rightly operationalized, can steer organizational success and sustainable growth. Companies, therefore, that look toward maximized use of BI will find themselves being able to balance challenges and opportunities anywhere inside an infinitely changing business terrain.

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