A Study on Impact of Business Analytics in Decision Making Process in Femtosoft Technologies Private Limited

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ABSTRACT

The present work investigates the influence of Business Analytics (BA) in the decision-making process of Femtosoft Technologies Private Limited, an IT services mid-size firm. With growing pressure on organizations to take decisions supported by facts, the use of analytics tools is imperative in strategic, operational, and financial planning. This study seeks to evaluate the use of tools like Excel, SQL, Tableau, and SPSS in Femtosoft to improve decision accuracy, efficiency, and customer satisfaction. Data were gathered from 102 employees using a structured questionnaire and analyzed through descriptive statistics, chi-square tests, and one-way ANOVA through SPSS. The results indicate that business analytics is a key driver in enabling decision-makers, especially among young professionals and analysts, to make timely decisions and enable risk reduction. Despite this, issues like insufficient training, complexity in data integration, and data quality remain obstacles to optimal adoption. The research concludes that although Femtosoft has been able to put in place key analytics practices, additional investment in real-time information systems, predictive analytics, and organization-level training will improve its analytical maturity and strategic agility. The findings of this study not only provide Femtosoft with actionable recommendations but also act as a benchmark for other IT organizations who wish to change their culture of making decisions with the use of business analytics.

KEYWORDS

Business Analytics, Decision-Making, Data-Driven Strategy, Predictive Analytics, Real-Time Dashboards, SPSS, IT Industry, Femtosoft Technologies, Operational Efficiency, Analytics Adoption, Employee Perception, Strategic Planning, Business Intelligence Tools.

INTRODUCTION

In the current fast-paced and competitive business world, organizations are facing mounting pressure to base decisions on data that will not only improve the efficiency of operations, but also profitability, and long-term sustainability. With the proliferation of digital data fueled by big data analytics, artificial intelligence (AI), and cloud computing, the importance of Business Analytics (BA) has never been more paramount. Business Analytics involves methods and tools for analyzing past data, extracting useful knowledge, and enabling decision-making on the basis of evidence.

Historically, organizational decision-making was mainly dependent on intuition, managerial judgment, or sketchy historical data. Such practices are no longer adequate under today's dynamic and uncertain market environments. Firms

now embrace Business Analytics to derive meaningful insights from huge datasets, reveal patterns, mitigate risks, and forecast future trends. This analytical practice enables decision-makers to make quicker, more informed decisions and act strategically—hence, gaining a competitive edge.

OBJECTIVES OF THE STUDY

PRIMARY OBJECTIVE

- To analyze the role of Business Analytics in enhancing decision-making at Femtosoft Technologies Pvt. Ltd.

SECONDARY OBJECTIVES

- To explore the types of business analytics technologies (e.g., data visualization, predictive analytics, machine learning) used in decision-making.
- To review relevant literature on the impact of analytics on organizational performance and efficiency.
- To investigate challenges such as data quality issues, system integration, and user resistance in implementing analytics solutions.
- To assess the impact of analytics-driven decision-making on customer satisfaction, operational improvement, and business growth.

SCOPE OF THE STUDY:

- Decision-Making Enhancement - Understanding how business analytical devices support decisions at all levels (strategic-enterprise, operational, tactical).
- Key Technologies Covered: SQL, Excel, Power BI, Tableau, SPSS, Predictive Modeling Techniques.
- Industry Perspective: Application of analytics in IT and software development, which is particularly relevant for the case of Femtosoft.
- Implementation Challenges - Examination of practical challenges such as integration complexity, cost, and data governance.
- Impact on Business Performance - Measures the impact of analytics in terms of efficiency, cost reduction, and client satisfaction.
- Current Trends: AI and machine learning with real-time analytics are becoming a core element of the modern decision support system.
- Recommendations: These are basically pragmatic suggestions on effective adoption of analytics as well as capability development.

NEED OF THE STUDY:

- To identify how Business Analytics (BA) creates effects through hastening, increasing accuracy, and data-driven decision-making within organizations.
- To identify how firms like Femtosoft Technologies could potentially leverage analytics for an upper hand in competition.

- To analyze practical challenges that business would face during the course of its implementation of business analytics tools and solutions.
- To examine the extent by which business analytics supports the strategic, tactical, and operational decisions made within an organization.
- Bring about bridging of gaps between the availability of data and how it can be used by looking into real-world applications of analytics in organizations.

BENEFITS OF THE STUDY

- Aid entities to comprehend the strategic role of business analytics in making the organization's decision-making skills better.
- Identify how analytics tools can help boost productivity, performance tracking, and operational accuracy.
- Assist management in identifying and choosing the tools and platforms best suited to their needs.
- Identifying Implementation Barriers and Provide Practical Solutions for Overcoming Those Barriers.
- Reference Source for Students, Professionals, and Analysts Interested in Business Analytics Applications.
- Support Data-Driven Strategic Planning to Show All Actions for Better Business Outcomes.

LIMITATIONS OF THE STUDY

- With research conducted purely on Femtosoft Technologies Pvt. Ltd., there is minimal scope for generalizing the results for organizations or industries outside this focus.

- Time constraint during the project period caused a limitation in terms of the data that could be collected and analyzed.
- There might be some biases and subjectivity in the survey responses, thus posing a threat to the accuracy and reliability of the findings with regard to questioning.
- Limiting access to confidential internal data may have led to incompleteness in the analysis carried out.
- Most practices captured in the study are pertinent to small and mid-sized IT firms, and the findings may not be of great relevance to larger firms or to non-IT sectors.

RESEARCH METHODOLOGY:

Research methodology refers to the organized steps that are followed in a systematic manner in collecting, analyzing, and interpreting data. The study aims to evaluate the role of Business Analytics (BA) in streamlining the decision-making process at Femtosoft Technologies Pvt. Ltd. It investigates the contribution of BA tools for decision-making based on data, operational effectiveness, and long-range planning.

A descriptive and analytical procedure is being followed, involving quantitative and qualitative data. Data were obtained through a structured questionnaire and secondary sources such as publications, industry reports, and case studies pertaining to business analytics.

SOURCES OF DATA:

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

Secondary Data came from academic journals dealing with trends and implementations in BA, 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 BA tools.
- Sample Size: 102 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).

DATA ANALYSIS AND INTERPRETATION

PERCENTAGE ANALYSIS

TABLE 1: SHOWING AGE OF RESPONDENTS

AGE GROUP	NUMBER OF RESPONDENTS	PERCENTAGE (%)
18 - 25	57	55.9%
26 - 35	23	22.5%
36 - 45	11	10.8%
46 - 55	7	6.9%
Above 55	4	3.9%

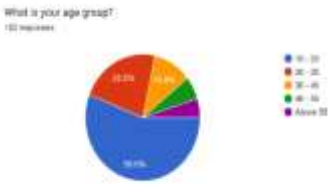

FIG 1: SHOWING AGE OF RESPONDENTS

Interpretation:

From the above table, out of 102 respondents, the majority—55.9%—fall in the 18–25 age group, followed by 22.5% in the 26–35 age group. Smaller proportions are observed in the older age brackets: 10.8% are between 36–45, and very few

are in the 46–55 and Above 55 categories, indicating limited senior-level participation.

Inference:

The majority of respondents (55.9%) belong to the 18–25 age group, indicating strong participation from younger professionals.

TABLE 2: SHOWING JOB ROLE OF RESPONDENTS

JOB ROLE	NUMBER OF RESPONDENTS	PERCENTAGE (%)
Analyst	44	43.1%
Executive	22	21.6%
Director	8	7.8%
Manager	18	17.6%
Other	10	9.8%

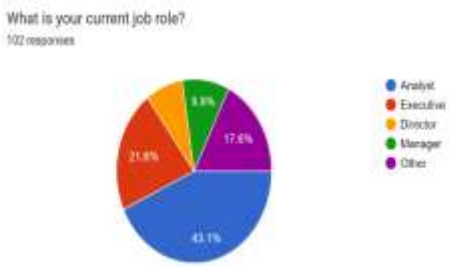

FIG 2: SHOWING JOB ROLE RESPONDENTS

Interpretation:

The data reveals that the majority of respondents (43.1%) are Analysts, followed by Executives (21.6%) and those in 'Other' roles (17.6%). Directors and Managers account for 7.8% and 9.8% respectively.

Inference:

A significant portion of respondents (43.1%) are serving in Analyst roles, indicating strong representation from the data-focused workforce.

TABLE 3: SHOWING TYPES OF BUSINESS ANALYTICS TOOLS USED

TOOL USED	NUMBER OF RESPONDENTS	PERCENTAGE (%)
Excel	63	62.9%
SQL	50	49.0%
Tableau/Power BI	52	51.0%
Python/R	39	38.2%
SAS	20	19.6%
Other	12	11.3%

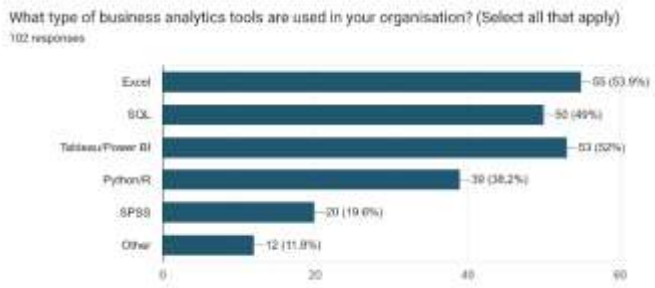

FIG 3: SHOWING TYPES OF BA TOOLS USED RESPONDENTS

Interpretation:

Among the 102 respondents, Excel is the most commonly used business analytics tool (53.9%), closely followed by Tableau/Power BI (52%) and SQL (49%). Python/R is used by 38.2%, while SPSS and other tools are less commonly used at 19.6% and 11.8% respectively.

Inference:

Excel remains the most widely used analytics tool, although Tableau/Power BI and SQL are also highly popular among organizations.

TABLE 4: SHOWING ACCURACY OF DECISIONS

RATING	NUMBER OF RESPONDENTS	PERCENTAGE (%)
Very Low	7	6.9%
Low	10	9.8%
Moderate	17	16.7%

High	55	53.9%
Very High	13	12.7%

FIG 4: SHOWING ACCURACY OF DECISIONS RESPONDENTS

Interpretation:

Out of 102 respondents, a majority of 63.7% rate the accuracy of decisions made using business analytics as High, followed by 16.7% rating it as Moderate. Smaller proportions rated it as Low (10.8%), Very High (6.9%), and Very Low (2%).

Inference:

Most respondents believe that business analytics significantly enhances the accuracy of decision-making within their organizations.

STATISTICAL ANALYSIS

CHI-SQUARE TEST:

Research Question:
Is there a significant association between how frequently companies use real-time data analytics and how often they use predictive analytics for business decisions?

Hypotheses:

- **H_0 (Null Hypothesis):** There is no significant relationship between the frequency of real-time data analytics usage and predictive analytics usage for business decisions.

- **H_1 (Alternative Hypothesis):** There is a significant relationship between the frequency of real-time data analytics usage and predictive analytics usage for business decisions.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	128.066[a]	16	<.001
Likelihood Ratio	87.340	16	<.001
N of Valid Cases	102		

a. 19 cells (76.0%) have expected count less than 5. The minimum expected count is .12.

TABLE 5: SHOWING CHI-SQUARE TEST RESULT

Interpretation:
The Chi-Square test results indicate a statistically significant association between the frequency of real-time data analytics usage and the frequency of predictive analytics usage. The Pearson Chi-Square value is **128.066** with **16 degrees of freedom**, and a **p-value < 0.001**, meaning the observed distribution is highly unlikely due to chance alone. This supports the idea that companies that frequently use real-time data analytics are also likely to use predictive analytics more often, and vice versa.

Inference:
The test provides strong evidence of a statistically significant relationship between the usage of real-time data analytics and predictive analytics in business decision-making. The **low p-value (< 0.001)** from both Pearson Chi-Square and the Likelihood Ratio confirms **the rejection of the null hypothesis**, suggesting the relationship is not due to random variation.

ONE WAY ANOVA:

Research Question:

Is there a significant difference in the confidence level of decision makers in using business analytics insights based on their job roles?

Hypotheses:

- **H_0 (Null Hypothesis):** There is no significant difference in confidence levels of decision makers across different job roles.
- **H_1 (Alternative Hypothesis):** There is a significant difference in confidence levels of decision makers across different job roles.

ANOVA

How confident are decision makers in using insights from business analytics?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	75.305	4	18.826	12.112	<.001
Within Groups	150.773	97	1.554		
Total	226.078	101			

TABLE 6: SHOWING CHI-SQUARE TEST RESULT

Interpretation:
The ANOVA results indicate a statistically significant difference in the **confidence levels of decision makers** across various **job roles**. The **F-statistic is 12.112** with a **p-value < 0.001**, suggesting that the differences in means among the groups are unlikely to have occurred by chance. This leads us to **reject the null hypothesis**.

This result implies that **job role significantly influences how confident decision makers are** in using business analytics insights. Some roles may be more experienced or exposed to analytics tools, leading to higher confidence, while others may be less involved.

Inference:
There is **strong statistical evidence** that confidence levels in using business analytics insights **vary significantly by job role**. Since the p-value is less than 0.001, we conclude that at least one group (job role) differs significantly from the others.

CONCLUSION:

Business Analytics (BA) is essential for improving Femtosoft Technologies Pvt. Ltd.'s decision-making framework. Business analytics help an organization gain helpful insights to make informed strategic, tactical, and operational decisions. Using tools such as Excel, SQL, Tableau, and SPSS, decision-makers at Femtosoft are thus better able to monitor performance, manage risks, and enable organisational efficiencies. While business analytics are recognized for faster, more accurate, and cost-effective decision-making, the study exposes constraints with their limited real-time adoption, data quality failures, non-use of predictive analytics, and varying levels of training offered to different departments. These barriers prevent the realization of the full potential of analytics to make meaningful decisions. To leverage the maximum value from analytics, Femtosoft should invest in recurrent training of all employees and allow the use of analytics tools across the organization. Femtosoft should also ensure the implementation of real-time dashboards integration of data across departments is improved, and a well-defined mechanism for measuring the ROI from analytics initiatives should be set up. Working through these areas should help create improved operational outcomes, better client relationships, and ultimately a competitive advantage for the organization. In conclusion, business analytics is an enabler that goes beyond technological implementation; it is a strategic driver of digital transformation and growth for sustainable organizations. Companies like Femtosoft that are proactive in their analytics endeavors will navigate market uncertainties, identify growth opportunities, and intelligent decisions. The limitations of this project should, however, be noted. The study involved only a single organization, Femtosoft Technologies. This may limit the extent to which its results can be generalized to other companies or sectors. Other influences on the findings could have been time limitations; limited access to confidential internal data; and the possibility of response bias in the surveys. However, despite these limitations,

the research provides useful insights into the operational role and application of business analytics for decision-making within a mid-sized IT setting.

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