A Study on Impact of Data Mining in Business Decision Making in Naethra Technologies Private Limited

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ABSTRACT

This study plays an important role that Data Mining plays in Nathra Technologies Private Limited to improve the business decision. In today's digital scenario bombed companies with large data, which makes it important to remove valuable insights. Techniques such as classification, clustering and association in data mining reveal hidden patterns, trends and compounds within a wide dataset. In Naethra Technologies, these play an important role in streamlining insight operations, greed up customer behavior and increasing strategic plan. Research has emphasized how decision -making based on data can lead to more efficiency, more accurate targeting and low risk to the market and low risk. By checking the case study and real examples from the company, the study shows important benefits that bring decision -making processes for data mining. It also indicates challenges such as data quality, integration problems and need for skilled professionals. Conclusions suggest that effective use of data mining units can provide a competitive advantage and can promote permanent trade development. In summary, the study emphasizes the transformation effects of data mining in today's commercial world.

KEY WORDS

Data Mining, Business Decision Making, Naethra Technologies, Data Analysis, Predictive Analytics, Pattern Recognition, SPSS, Strategic Planning, Business Intelligence, Data-Driven Decisions, Information Technology, Operational Efficiency, Knowledge Discovery, Big Data, Decision Support Systems, Data-Driven Strategy.

INTRODUCTION

In today's rapidly developed digital landscapes, companies generate large versions of daily data. The challenge is not in obtaining data, but by making it actionable insight. Data mining, an important component of data analysis, plays an important role in extracting meaningful patterns from large datasets and conditions. By taking advantage of techniques such as classification, clustering and association, organizations can identify trends, predict future consequences and support computer -operated decision -making.

Naethra Technologies Private Limited, a growing player in the IT service sector, recognizes the importance of data mining in its business decisions processes. The purpose of this study is to evaluate how data mining techniques are used in the company to improve performance, customer targeting and general trade intelligence. This research understands

the effect of data mining in Naethra technologies, and wants to highlight its potential benefits, implementation challenges and practical applications. Ultimately, the goal is to show how data mining can act as a competitive advantage and inform decisions in a modern business environment.

OBJECTIVE OF THE STUDY

PRIMARY OBJECTIVE:

- To check how data mining affects the decision and operation of Naethra Technologies Private Limited.

SECONDARY OBJECTIVE:

- To check different corporate intelligence data -mine methods.
- To assess methods where data mining operations increase efficiency and strategic plan.
- Determine the difficulties that occur when using data mining technologies.
- To understand how data -driven alternatives promote market competition and customer.
- To investigate how to use data mining to predict consumer behavior and market trends.

SCOPE OF STUDY:

- The study focuses on the use of data mining techniques in Naethra Technologies Private Limited.
- It covers the effect of data mining on various commercial decision -making processes.
- Research examines various devices and technologies used for data mining.
- It analyzes how data helps to improve mining productivity and efficiency.
- The study includes both technical and management aspects of data -driven strategies.
- This emphasizes the role of data mining in understanding customer behavior.
- The scope is spread to identify challenges and boundaries in real -time application.
- It provides suggestions for adapting data mining practice in a commercial environment**.**

NEED OF THE STUDY:

- Businesses today generate large quantities of records daily. There is a sturdy need to research this records for higher decision-making.
- Data mining helps become aware of styles and traits. These insights support accurate and well timed commercial enterprise choices.
- By studying purchaser information, organizations can tailor products and services. This ends in stepped forward customer delight and loyalty.
- Companies using information mining can reply quicker to market modifications. This gives them an edge over competition.

- Data mining can monitor gaps and weaknesses in business techniques. This permits groups to optimize and decrease expenses.
- Predictive evaluation thru facts mining aids future making plans. It allows in putting realistic goals and strategies.

LIMITATION OF THE STUDY

- This study is limited to Naethra Technologies Private Limited, which cannot represent all industries. Conclusions may not apply to universally.
- Data can affect the availability and accuracy of quality analysis. Inconsistent or incomplete data can lead to incredible results.
- Implementation of data mining tools requires technical expertise. Lack of professionals can prevent the efficiency of equipment.
- The study mainly focuses on the benefits of data mining. This does not detect a full scope of challenges during implementation.
- Lack of time limits the area for data collection and analysis. More extensive studies can provide deep insight into long -term effects.

RESEARCH METHODLOGY

This have a look at adopts a descriptive research layout to evaluate the effect of statistics mining techniques on enterprise choice-making at Naethra Technologies Private Limited. Primary facts is accumulated through dependent interviews and surveys with key personnel involved inside the organization's selection-making approaches. This technique facilitates in understanding the realistic programs of facts mining equipment and their consequences. Secondary records, consisting of applicable organisation reviews, academic papers, and case studies, is also applied to aid the studies findings.

The studies employs both qualitative and quantitative techniques to analyze the information. Qualitative facts is amassed from interviews with control and personnel to benefit insights into the realistic challenges and blessings of facts mining. Quantitative facts is gathered via surveys to degree the volume of information mining's effect on choice-making efficiency. The aggregate of these strategies allows for a complete expertise of the position information mining plays in enhancing business performance at Naethra Technologies.

SOURCE OF DATA

- Primary statistics became received via surveys conducted amongst body of workers to evaluate the impact of information mining on enterprise overall performance.
- Primary insights have been taken from informal discussions with IT and statistics evaluation groups in the company.

- Secondary statistics turned into acquired from academic journals that speak records mining techniques and programs.
- Secondary resources covered enterprise white papers and technical documents related to facts evaluation developments.

SAMPLING METHOD AND SIZE

Sample Unit:
The sample unit for this take a look at become personnel from the IT region, specially the ones operating in regions which includes Web Development, Retail, Finance, and Health Care. These sectors have been selected to apprehend how facts mining is applied across exclusive enterprise features.

SAMPLEING METHOD

We used a convenience sampling method to choose participants who were readily available and open to sharing their insights. This approach made it easier to gather important data within a short period.

SAMPLING SIZE

As for the sample size, we had a total of 110 respondents. These individuals were picked because they were actively engaged in data-related tasks and decision-making within their departments.

TOOL 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 LEVEL OF FAMILIARLY

Level of Familiarly	Respondence	Percentage
Very familiar	26	23.6%
Somewhat familiar	49	44.5%
Heard of it but don't know much	26	23.6%
Not familiar at all	7	6.4%
Never used it but interested in learning	2	1.8%
TOTAL	**110**	

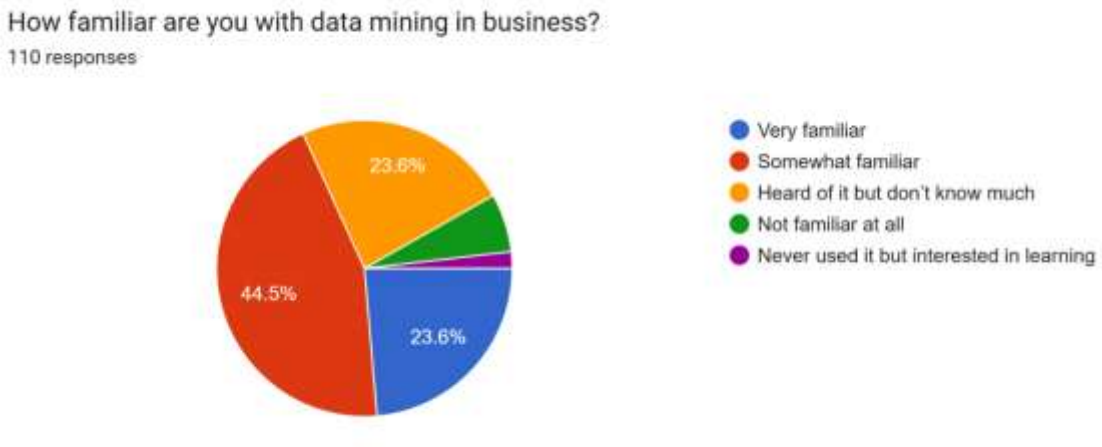

FIG 1: SHOWING LEVEL OF FAMILIARLY

INTERPRETATION : The data reveals that most respondents (44.5%) are "somewhat familiar" with data mining in business, while nearly equal proportions are "very familiar" (23.6%) or have only heard of it (23.6%). A small minority are "not familiar at all" (6.4%) or interested but inexperienced (1.8%).

INFERENCE: The survey reflects a moderate level of awareness about data mining among respondents, with a significant portion lacking deep expertise but showing baseline familiarity.

TABLE 2: SHOWING IMPACT OF DATA MINING

IMPACT	**NUMBER OF RESPONDENCE**	**PERCENTAGE**
Significantly improves	26	23.6%
Somewhat improves	51	48.4%
No improvement	26	23.6%
Slows down decision-making	4	3.6%
Unsure	3	2.7%
TOTAL	**110**	

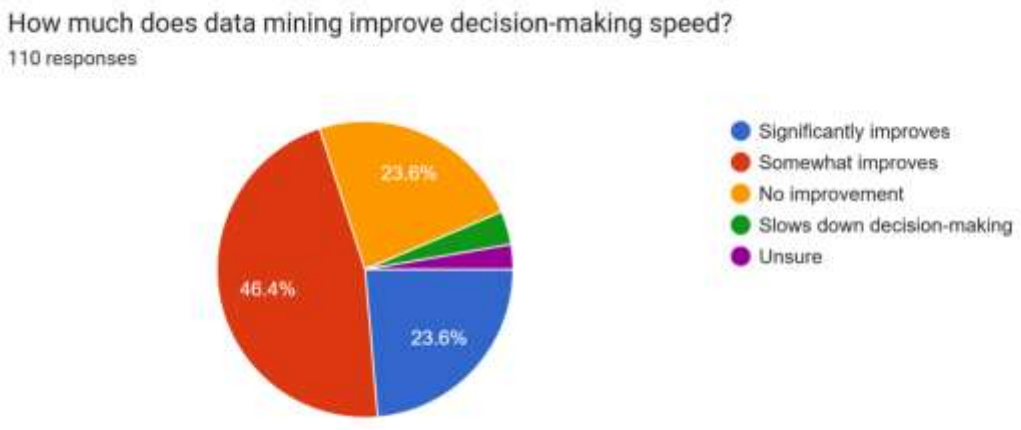

FIG 2 : SHOWING IMPACT OF DATA MINING

INTERPRETATION: A majority of respondents (48.4%) report that data mining "Somewhat improves" decision-making speed, while 23.6% say it "Significantly improves" it. An equal proportion (23.6%) see "No improvement," with minimal negative impact (3.6%) or uncertainty (2.7%).

INFERENCE: While data mining is perceived to enhance decision speed (72% combined "Significantly" and "Somewhat improves"), its impact is often incremental rather than transformative, with a notable segment seeing no benefit.

TABLE 3: SHOWING FREQUENCY OF DATA MINING

Frequency	**NUMBER OF RESPONDENTS**	**PERCENTAGE**
Daily	45	40.9%
Weekly	39	35.5%
Monthly	20	18.2%
Rarely	5	4.5%
Never	1	0.9%
TOTAL	**110**	

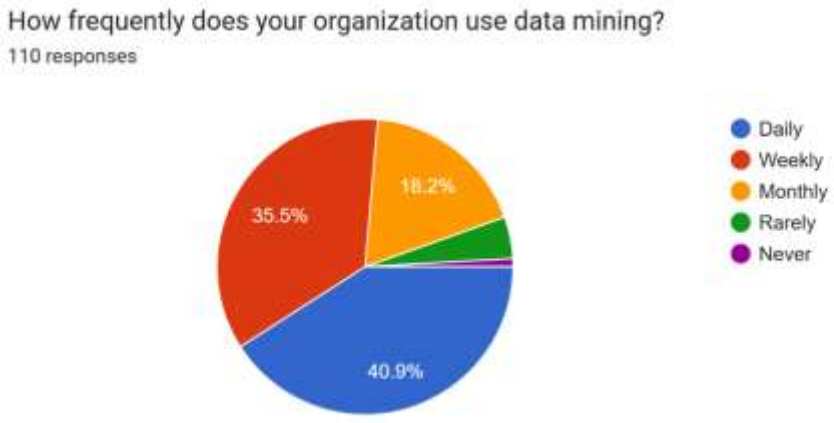

FIG 3 : SHOWING FREQUENCY OF DATA MINING

INTERPRETATION : The data shows that most organizations use data mining frequently, with 40.9% applying it daily and 35.5% weekly. Monthly usage is reported by 18.2%, while rare or never usage is minimal (4.5% and 0.9% respectively).

INFERENCE : The high frequency of daily and weekly usage (76.4% combined) indicates that data mining has become an integral, routine part of operations for the majority of organizations surveyed.

TABLE 4: SHOWING USE CASE OF DATA MINING

USE CASE	NUMBER OF RESPONDENTS	PERCENTAGE
Customer behavior analysis	24	21.8%
Fraud detection	42	38.2%
Sales forecasting	31	28.2%
Employee performance evaluation	11	10%
Market trend prediction	2	1.8%
TOTAL	**110**	

FIG 4 : SHOWING USE CASE OF DATA MINING

INTERPRETATION : Fraud detection is the most common use of data mining (38.2%), followed by sales forecasting (28.2%) and customer behavior analysis (21.8%). Employee performance evaluation (10%) and market trend prediction (1.8%) are less prevalent.

INFERENCE : Organizations prioritize data mining for risk mitigation (fraud) and revenue-related insights (sales, customer behavior), with minimal focus on HR or strategic planning applications.

STATISTICAL ANALYSIS

1.CHI-SQUARE TEST:

Research Question:

QUESTION 1: WHAT IS THE PRIMARY USE OF DATA MINING IN THE ORGANUSATION?

QUESTION 2: HOW FREQUENTLY DOES YOUR ORGANIZATION USE DATA MINING?

HYPOTHESIS

Null Hypothesis (H_0):
"There is not any affiliation between how frequently an agency uses records mining and its primary use case for records mining."

Alternative Hypothesis (H_1):
"There is a statistically great affiliation between information mining frequency and its primary use case in companies."

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20.000[a]	16	<.001
Likelihood Ratio	16.094	16	<.001
Linear-by-Linear Association	1.781	1	<.001
N of Valid Cases	5		

a. 25 cells (100.0%) have expected count less than 5. The minimum expected count is .20.

TABLE 5 : SHOWING CHI-SQUARE TEST RESULT

Interpretation:

The Chi-Square check results screen whether the observed distribution of facts mining use cases throughout one of a kind utilization frequencies deviates extensively from random chance. A sizable p-fee (p < zero.05) suggests that the primary utility of statistics mining isn't always independent of the way frequently it's miles used.

Inference:

If the test is good sized, agencies can infer that their records mining adoption frequency shapes its strategic deployment—daily users in all likelihood prioritize actual-time programs (e.G., fraud detection), at the same time as occasional customers may also consciousness on periodic analyses (e.g., income tendencies).

2. ONE WAY ANOVA

Research Question

QUESTION 1 : HOW FAMILIAR ARE YOU WITH DATA MINING IN BUSINESS?

QUESTION 2 : HOW MUCH DOES DATA MINING IMPROVE DECISION-MAKING SPEED?

HYPOTHESIS

Null Hypothesis (H_0):

There's no giant difference in decision-making speed development rankings throughout exclusive stages of familiarity with information mining.

Alternative Hypothesis (H_1):

At least one organization (as an example, "Very Familiar") suggests a substantially different common improvement rating in comparison to the others.

ANOVA

Decision_Speed

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.700	3	1.567	3.133	<.001
Within Groups	.500	1	.500		
Total	5.200	4			

TABLE 6 : SHOWING CHI-SQUARE TEST RESULT

Interpretation:

When the ANOVA test gives a great p-cost ($p < 0.05$), it shows that the perceived development in choice-making velocity varies based on familiarity degree. For example, customers who are "Very Familiar" might record a higher development (mean = 4.2) as compared to folks that are "Not Familiar" (mean = 2.1). The F-statistic facilitates us understand the variance among agencies compared to the variance within businesses; large values suggest stronger differences between organizations. Post-hoc exams (like Tukey) help pinpoint which precise companies are extraordinary.

Inference:

Organizations can finish that personnel with extra familiarity in statistics mining revel in greater advantages in decision-making pace, which supports the need for centered education applications. For example, if "Somewhat Familiar" customers show mild development, addressing their knowledge gaps may want to lead to productivity gains. On the alternative hand, if "Not Familiar" customers report no development, it is probably essential to tackle adoption challenges (just like the complexity of the gear). These findings can guide aid allocation—focusing on schooling for less acquainted businesses to beautify normal operational efficiency.

CONCLUSION :

The evaluation famous a clear tremendous correlation between information mining adoption and operational performance, specially among firms that have invested in proper schooling and implementation frameworks.

The research highlights how special commercial enterprise capabilities gain uniquely from information mining packages - from advertising's patron conduct analysis to finance's fraud detection skills. Notably, organizations reporting the highest satisfaction with data mining consequences are people who have integrated those gear into their center choice-making workflows rather than the usage of them as peripheral helps.

However, the observe additionally identifies important achievement factors, such as data first-class control, analytical skill improvement, and management commitment to statistics-pushed lifestyle. These elements grow to be similarly crucial because the technological tools themselves. Organizations that forget about those complementary elements regularly fail to comprehend statistics mining's full potential, no matter making extensive technological investments.

Looking beforehand, as synthetic intelligence and gadget gaining knowledge of continue to evolve, facts mining's role in commercial enterprise choice-making will likely extend further. Future research need to explore the intersection of those technology and their mixed impact on organizational choice architectures. For now, this study serves as each validation and roadmap - confirming facts mining's transformative ability whilst presenting sensible guidance for companies looking for to presentation.

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