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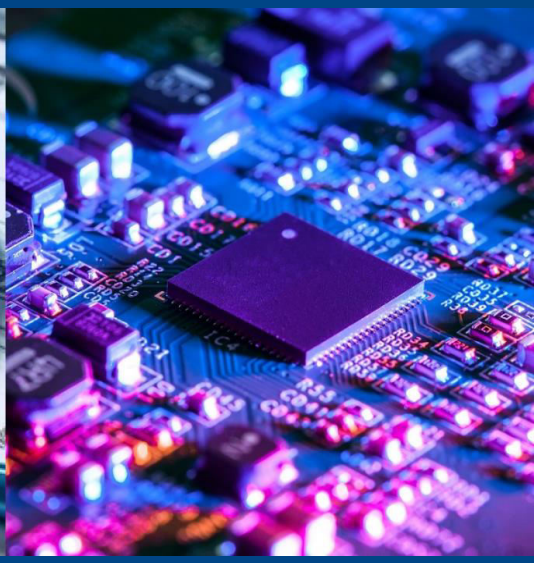

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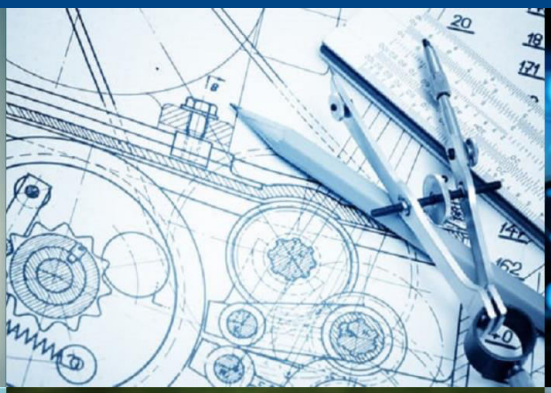

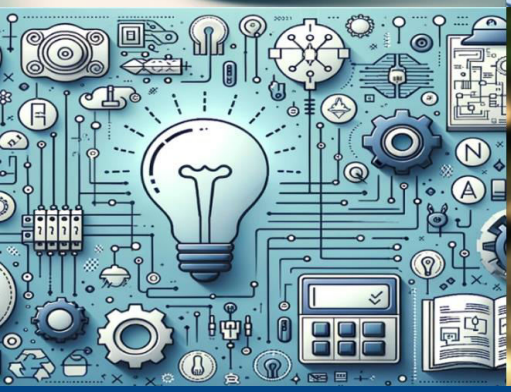

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A study of AI in Credit Risk Evaluation of SME`s

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ABSTRACT: Small and Medium Enterprises (SMEs) play a crucial role in driving economic growth across the world. They generate employment, encourage innovation, and contribute significantly to GDP. However, despite their importance, SMEs often struggle to access formal financing. One of the main reasons behind this is the difficulty financial institutions face in assessing their creditworthiness.

Unlike large corporations that maintain detailed and audited financial records, SMEs usually operate with limited documentation, fewer assets for collateral, and greater exposure to market fluctuations. This creates a gap between lenders and borrowers, commonly referred to as the "financing gap."

KEYWORDS: Credit Risk Management, SMEs, Financial Inclusion, Credit Scoring, Information Asymmetry, FinTech

I. INTRODUCTION

Small and Medium Enterprises (SMEs) are often considered the backbone of the global economy. They make up a large portion of businesses worldwide and are a major source of employment and innovation. Despite their significant contribution, SMEs frequently face challenges when it comes to securing financial support from formal institutions. This issue is not due to a lack of potential or ideas, but rather because of the complexities involved in evaluating their credit risk. Credit risk refers to the possibility that a borrower may fail to repay a loan as agreed. For banks and financial institutions, assessing this risk in the case of SMEs can be quite challenging.

II. LITERATURE REVIEW

Several recent studies have explored how Artificial Intelligence (AI) and machine learning are transforming credit risk assessment for SMEs.

Rizvi (2025) presents an AI-based framework designed specifically for SME credit evaluation. The study highlights the limitations of traditional models that rely heavily on collateral and past financial records. It explains how machine learning and alternative data sources can improve prediction accuracy and help more SMEs access formal credit.

Objectives of the Study

The main objectives of this study are:

1. To understand how Artificial Intelligence (AI) is used in credit risk evaluation of SMEs.
2. To compare AI-based models with traditional credit assessment methods such as logistic regression and manual evaluation.
3. To examine whether AI improves prediction accuracy and reduces the risk of loan defaults.

Hypothesis

The study is based on the following hypotheses:

H1: Impact of Information Asymmetry on Credit Accessibility

There is a negative relationship between information asymmetry and the ability of SMEs to access low-interest formal credit.

H2: Predictive Power of Alternative Data

Using alternative data such as transaction history, utility payments, and digital activity improves the accuracy of credit risk models compared to relying only on traditional financial data.

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III. RESEARCH METHODOLOGY

This study is both descriptive and analytical in nature. It aims to understand and evaluate how AI is being used in SME credit risk assessment and how it compares with traditional methods.

A **quantitative research approach** is used in this study. Data will be collected through structured questionnaires, which will help in gathering measurable and reliable responses.

Population of the Study

The study focuses on respondents who are directly involved in SME lending or are affected by credit evaluation systems. These include:

- Bank credit managers
- SME owners who have applied for business loans

Sample Size

For this study, a total of **51 respondents** were selected. This sample size was considered appropriate given the time and resource constraints, while still allowing meaningful insights into the topic.

Sampling Method

The study uses a combination of **convenience sampling** and **stratified sampling**.
Convenience sampling was used because respondents were selected based on easy accessibility and availability. At the same time, to ensure better representation, stratified sampling was applied by dividing respondents into four groups:

- Banks
- SME borrowers

Sources of Data

A. Primary Data

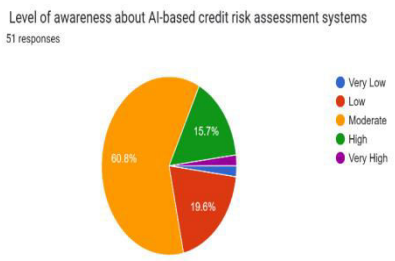
Primary data was collected directly from respondents using a **structured questionnaire**. The questionnaire was designed using a **5-point Likert scale**, making it easier to measure opinions and perceptions.

B. Secondary Data

Secondary data was collected from reliable and existing sources such as:

- Research papers
- RBI reports
- Annual reports of banks

IV. ANALYSIS



Interpretation

A majority of respondents (60.8%) reported having a moderate level of awareness about AI in banking. When combined with those who have low awareness (19.6%), it shows that over 80% of respondents do not have deep knowledge of AI. Only a small percentage (15.7%) reported high awareness, indicating a gap in understanding.

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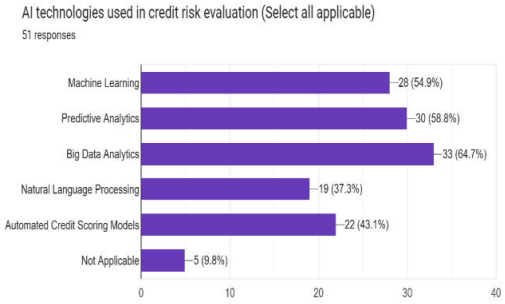
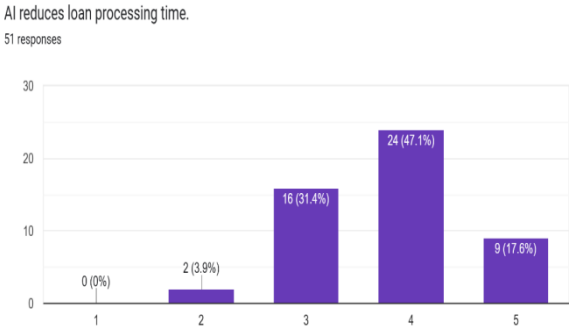


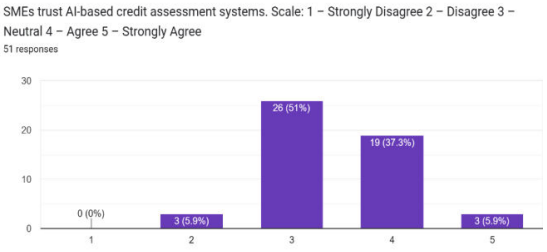
Interpretation

Big Data Analytics emerged as the most recognized technology (64.7%), highlighting its importance in handling large and complex datasets. Predictive Analytics (58.8%) and Machine Learning (54.9%) were also widely recognized. Natural Language Processing (37.3%) had lower awareness.



Interpretation

A strong majority (64.7%) agree that AI reduces loan processing time. Very few respondents disagreed, which shows general acceptance of AI as a time-saving tool.



Interpretation

Many respondents (51–54%) remained neutral regarding the cost of AI implementation, but 37.3% believe it is a significant barrier. This indicates that cost is a concern, especially for smaller institutions

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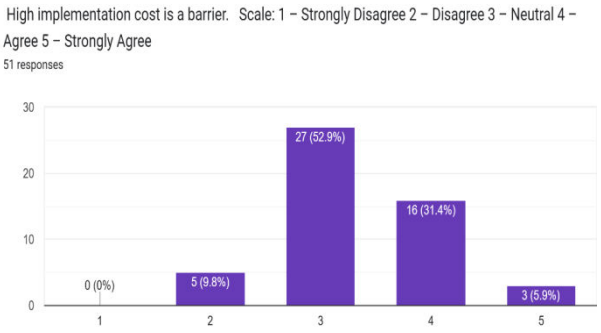

Interpretation

More than half (52.9%) believe that a lack of skilled professionals is a major challenge in implementing AI systems.

V. FINDINGS

- AI adoption is increasing but not yet universal
- Awareness of AI is moderate, with a clear knowledge gap
- AI improves accuracy and reduces default risk
- Loan processing becomes faster with AI

VI. CONCLUSION

The study concludes that Artificial Intelligence is gradually transforming credit risk evaluation in SME lending. It has made the process more efficient, data-driven, and inclusive. Compared to traditional methods, AI performs better in terms of accuracy, speed, and handling alternative data.

However, the adoption of AI is still at an early stage. Challenges such as high costs, lack of skilled professionals, data privacy concerns, and unclear regulations continue to slow down its full implementation.

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