Chapter 11
Leveraging AI–Powered Predictive Analytics for Proactive Risk Management and Business Resilience in SMEs:
Harnessing Predictive Insights to Strengthen Decision–Making in SMEs

Avtar Singh

https://orcid.org/0000-0002-9592-9319

Lovely Professional University, India

Gagandeep Singh

https://orcid.org/0000-0001-8644-4064

Lovely Professional University, India

ABSTRACT

The AI predictive analytics-based tool has broken the silence by prompting them to adopt proactive ex-ante risk management strategies as opposed to the previous schemes. predictive analytics permits the SME to anticipate imminent disturbances, form the trend, and detect anomalies in real-time through its application of machine learning algorithms and advanced data analytics techniques. Such methods can

*consequently be expected to cease or avert impacts created by the following: antic-
ipated supply chain disruptions, possible financial vulnerabilities, and operational
inefficiencies. Indeed, challenges abound in adopting AI solutions. Notwithstanding
these challenges, SMEs have proved vibrant in adopting AI tools to enhance their
risk mitigation frameworks and resilience against crisis events such as recession or
global pandemics, as borne out by case studies. This review paper critically exam-
ines the different theoretical aspects and future prospects of AI-powered predictive
analytics in the context of SME adoption.*

1. INTRODUCTION

SMEs are crucial in the global economy and hence important in making the next
innovation for employment generating and sustainable growth. Nevertheless, they
remain one of the most exposed establishments to various forms of risk owing to
their size and limited resources, thereby enhancing the need for them to implement
effective risk management for survival and growth. Thus they form the core buttress
of most economies in the world and make meaningful contributions to employment
levels and economic activity. Most small and medium enterprises have very special
challenges, such as inadequate finances to sustain their operations, operationalizing
inefficiencies, and fragility when subjected to market fluctuations. A challenge
compounded by the speed with which the business environment evolves due to
technological changes, economic uncertainties, and regulatory queries. Effective
risk management becomes an important building block in making sustainable and
growth-oriented SMEs. This reactive, manual style of risk management is no longer
a remedy for the complexity and dynamism of the modern business environments;
therefore, the demand for a strategy that would allow SMEs still further insight into
upcoming uncertainties steadily grows. Now that AI and predictive analytics form
the new grandeur of risk management, using AI by leveraging the predictive ana-
lytics should open new horizons towards automating risk assessments in all sectors.
With AI-enabled predictive analytics, SMEs would have opportunities to harness the
competitive advantage usually enjoyed by large enterprises via affordable, scalable
solutions for risk management. In this context, the paper will cover aspects of the
use of AI-powered predictive analytics in furthering the process of risk mitigation
and business resilience of SMEs.

SMEs occupy a central place in the global economy in terms of playing their role
in innovation, employment and sustainable growth. But small and medium scale
enterprises are one of the most exposed establishments to various forms of risk
because of their size and limited resources; therefore, effective risk management
becomes most essential for survival and growth. These enterprises form the core

28 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/leveraging-ai-powered-predictive-analytics-for-proactive-risk-management-and-business-resilience-in-smes/383818

Related Content

The Development of an Enterprise Realignment Framework for Firms Entering Emerging Markets
Rebecca De Coster (2020). *Journal of Media Management and Entrepreneurship (pp. 42-54).*
www.irma-international.org/article/the-development-of-an-enterprise-realignment-framework-for-firms-entering-emerging-markets/246065

Preference Reversal Under Vulnerability: An Application of Neural Networks in Mexican Family Firms
Aurora Correa-Flores (2020). *Handbook of Research on the Strategic Management of Family Businesses (pp. 228-243).*
www.irma-international.org/chapter/preference-reversal-under-vulnerability/249353

The Impact of Simulation Tools in Finance Schools as a Learning Strategy From Educators' Perspectives
Ilias A. Makris, Sotiris Apostolopoulos, Vasilios Babalos, Panagiotis Dimitrakopoulosand Panagiotis Charalampakis (2025). *Integrating Simulation Tools Into Entrepreneurship Education (pp. 161-180).*
www.irma-international.org/chapter/the-impact-of-simulation-tools-in-finance-schools-as-a-learning-strategy-from-educators-perspectives/374677

Business Models for Social Entrepreneurs
Alphonce Tavona Shiri (2016). *Incorporating Business Models and Strategies into Social Entrepreneurship (pp. 66-78).*
www.irma-international.org/chapter/business-models-for-social-entrepreneurs/135334

An Innovative Custom Cyber Security Solution for Protecting Enterprises and Corporates' Assets