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# Machine Learning Enables Decision-Making Processes for an Enterprise

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## INTRODUCTION

The terms such as "Problem Solving", "Decision Making", and 'Business Strategy" are used in business enterprises. These terms are used interchangeably. Any action taken by an executive or a team of executives in an enterprise in the context of the above terms depends on the skill, professional experience, and business knowledge of the executives. Sometimes action is also taken by the executives based on their intuitions. Business Strategy and addressing business issues are made based on choosing among the alternatives available to decision-makers.

Generally, the established business management models are made use of by the executives in enterprises. These models are such as statistical tools for forecasting, deciding the inventory level, and determining the resources allocation. Financial models such as "Make or Buy Decision", "Equipment Replacement" are based on the quantitative method. When the problems and business issues are complex, the qualitative, standard models cannot solve or such a decision. Rich experience and in-depth knowledge of the business are needed. The interdisciplinary approach is also required to address business issues or handle complex and complicated business situations. Mainly the factors affecting decision-making are 1-global market scenario, 2- political stability in a country, 3-consumerism, and 4-government intervention, and 5- new competitors in the markets. Many new concepts are emerging in the discipline of information and communication technology. These concepts along with the concepts in business management are facilitating in developing business models for an effective decision-making approach.

## BACKGROUND

The advent of computer systems and the integration of information and communication technology provided scope for designing and developing business tools and business models. Some of them are management information systems, executive information systems, and business analytics, business intelligence, case tools, expert systems, and customer resource management. The above list is not exhaustive. In the present business scenario, the concepts such as cloud computing, artificial intelligence, and machine learning are facilitating in developing business models for the qualitative decision process or improving the existing decision process. Ultimately the decision-making process of choosing among the alternative course of action to attain a goal or achieve a set objective.

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## Focus in the Chapter

Designing a business model in the machine learning environment needs special efforts. The reason being computer system is required to be trained to think like an intelligent human being. Collective intelligence of domain experts, functional specialists besides making the computer system familiar with the business processes and procedures of a particular business operation. On the basis of the requirements of a particular business application algorithms need to be developed. Collaborative concepts in the discipline of information and communication technology are required to be identified for designing an effective business model under the machine learning environment. This chapter mainly explains how the approach mentioned above will facilitate in designing a business model with the concept of machine learning.

## Literature Review

The author (Iqbal H Sarkar,2021) rightly observes in the article titled "Machine Learning Algorithms, Real-world Applications and Research Direction" in the current age of Industry 4.0 the digital world has a wealth of data such as IOT data, business data, social media data and other related sources. One should have the knowledge of artificial intelligence particularly machine learning is the key. The author talks about the decision makers in the various real world situations and application arrears. The author highlights the challenges and potential research directions in machine learning environment.

The authors (Raffaele Cioffi, Marta Travaglioni, Giuseppina Piscitelli and Fabio Defelice, 2020) in their article titled "Artificial Intelligence and Machine Learning Applications in Smart Production: Progress, Trends, and Directions" stress the adaption and innovation are extremely important in manufacturing industry. Further they say that this development should lead to sustainable manufacturing using new technologies. To promote sustainability, smart production requires global perspective of smart production application technology. In this regard they indicate the intense research efforts in the field of artificial intelligence, a number of artificial intelligence based technique such as machine learning have already been established in the industry to achieve sustainable manufacturing.

The author (Weijin, 2020) in the paper titled "Research on Machine Learning and Its Algorithms and Development" analyses the basic classifications machine learning includes supervised learning, unsupervised learning, and reinforcement learning. It combines analysis on common algorithms in machine learning such as decision tree algorithm, random forest algorithm, and artificial neural network algorithm.

## The Approach Followed in This Chapter

The concepts of artificial intelligence, machine learning, and cloud computing are selected for designing a business model for a textile mill in India. This chapter consists of three sections. Section 1 provides an overview of the concepts mentioned above. Section 2 gives an overview of collaborative concepts. Section 3 discusses a case illustration in the context of the above concepts and Section 4 talks about future trends and conclusions.