Role of Artificial Intelligence System in Business Decision-Making: A Study of Select Literature

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Abstract: Artificial intelligence is intelligence displayed by machines, in contrast with the natural intelligence displayed by humans. AI deals with the simulation of intelligent behaviour in computers. Artificial intelligence enhances the capability of machines to imitate human behaviour. AI is a technologythat becomespart of everyone's life. These technologies are so advanced that they don't have to be coded every time.They understand the motion of work automatically. The study aims to understand the importance of the artificial intelligence system, to understand its advantages by studying the select literature available and draw the conclusion thereof. The study is a descriptive one based on select literature. Literature is collected from various secondary sources and isfurther analysed to conclude.The paper presents a comprehensive review of the application of artificial intelligence techniques in business decision-making. Several AI techniques that as ANN,FUZZY LOGIC, INFERENCE RULES, GENETIC ALGORITHMS and EXPERT SYSTEMSare utilised for various purpose in business management.
Keywords: AI, Artificial Intelligence System, Business Decision-Making.

I. Introduction

The term AI was first used in 1956. Early AI research explored topics like problem-solving and symbolic methods. This invention was asignificant step towards the automation and formal reasoning that is used in today's computers.Artificial intelligence can be explained as the branch of computer science that deals with system automation in an intelligent manner as like as humans beings.Computer programs are now being developed with the use of Artificial intelligence to solve intricate problems and process. Now machines can perform functions similar to humans, because of artificial intelligence. AI is usedbecause it saves a lot of time and manpower. Artificial intelligence is a domain of study that "endeavour to define & emulate intelligent behaviour in terms of computational processes" by dint of performing the tasks of decision-making, learning and problem-solving. Unlike other fields allied to intelligence, Artificial intelligence is primarily concerned with both understanding & structuring of intelligent entities and can automatize processes. It is apparent that artificial intelligence is influencing on a variety of subfields & society at a broad level. The paper aims to review the application of AI in business decision-making. Apart from the introduction, the rest of the paper has been bifurcated into the following sections: section two deals literature review, section three deals with the tabular representation of review and finally section four deals with the conclusion.

II. Objectives of the Study
1. To know and understand the importance of the Artificial Intelligence System.
2. To study the select literature available on the Artificial Intelligence System.
3. To study the role of the Artificial Intelligence System in Business Decision-Making

III. Research Methodology
This study aims to know and understand the importance of the artificial intelligence system from some select literature available and throw alight on the importance of AI from the same. The study also focuses on the role of the artificial intelligence system in business decision-making. The study is descriptive in nature and literatures were collected from various secondary sources. The paper tries to delineate the contribution of literature collected towards the fulfilment of the objectives.

IV. Literature Review
Glover Et Al. (1986) mark out the relationship between the general employees programming problem and concerned problems, reporting computational outcomes for a procedure that related problems, reporting computational results for a procedure that resolves these more complicated problems within 98-99 per cent optimality & drives on a microcomputer. They perceived their approach as a unification of management science and artificial intelligence techniques. The advantages of such a unificationwere indicated by the fact that other zero-one scheduling implementations accounted in the literature have extracted comparable approximations of

optimality merely for problems from two to three orders of magnitude smaller, & then only by the use of large mainframe computers.[1]

Michael Et Al. (1988) stated a knowledge rooted artificial intelligence (AI) system called MARBLE that estimated the riskiness of business loan applicants. MARBLE is a miniature for a decision support system (DSS) for administrating and recommending business loan evaluation. An extraordinary feature of MARBLE is that it has the potential to learn; this is cognizable— by equipping MARBLE with an inductive logical thinking engine that magnifies its deductive problem solver. The paper articulated about the AI system that exercises inference rules to emulate the thought process of a lending officer when evaluating a loan request. The inductive learning approach and the learning logic of MARBLE are stated and, additionally, there is an instance of the system's operation in the loan diagnosis process. [2]

RULESPACE (2001) RULESPACE made a web traffic control tool that used the neural network (SLAUGHTER, 1999) to examine the content of a web page. It can forbid employees from visiting sites that are label inappropriate based on content such as; weapons, drugs, gambling, stock trading, pornography, hate material, or job searches. Instead of relying on the lists of already identified URLs or keywords, it analyses text, images and network associations to trace out and classify the page [3]

TREJECTA (2001) customer relationship management (CRM) is the synchronisation between sales, field support, marketing, customer service, and other customer contact functions. TREJECTA an American company that is located in Texas develop an optimising system called VIRDIX. According to TRAJECTA, VIRDIX combined advanced analytics, mathematical programming techniques, applied probability, simulation and patented neural network technologies to model complex business situations and compute optimal decisions In a businessorganisation, IT managers have riddles with employee misuse of the web.[4]

Mohan P. Rao Et Al. (2005) delineate the framework for a comprehensive productivity analysis procedure and presents a process.[5]

Kutilek P. (2005) sighted at two contemporary modern disciplines. However, primarily it is dedicated to applications of potential methods of artificial intelligence that in common applications will substitute classical mathematical methods in the decision making of the management of a company. These new analytical methods were rootedin soft computing, i.e. neural networks; genetic algorithms and fuzzy logic.[6]

Nenortait, J. Et Al. (2009) pioneered the decision-making model which is foundedon the application of artificial neural networks(ANNs) and particle swarm optimisation (PSO) algorithm. In the proposed decision-making model ANNs are utilised to make the analysis of fact and to compute the decision. The excitation of ANNs is rootedin the application of the PSO algorithm. The core idea of this algorithm application is to select the "world best" ANN for decision-making and to adapt the weights of other ANNs towards the weights of the best network.[7]

Slavic Et Al. (2010) urged the use of methods specific to artificial intelligence in financial management, intending at finding some pairs (artificial intelligence method, financial management problem) in which the outcomes have to be optimal and better than traditional methods. [8]

Letter Et Al. (2010) formulated a proposed model that recognises an artificial neural network as an enabling tool for evaluating credit applications to support loan decisions in the Jordanian commercial banks. A multi-layer feed forward neural network with back EXTENSION learning algorithm was utilised to build up the proposed model.[9]

Thakur, J. S. (2012) Advocated a holistic framework to examine the ES approachthatwas practically attainable for organisational settings. It also furnished executives and scholars with a realistic understanding of incorporating knowledge management strategy and technologies in business processes for successful performance. It was ground on the psychological conceptions of human competence and performance in the workplace.[10]

Author	Problem Addressed	Techniques Used
Glover et al., 1986	Employee scheduling problem	Heuristic method
Michael et al., 1988	Evaluates the riskiness of business loan applicants.	Inference rules, inductive inference engine
RULESPACE,2001	Employee abuse of the web	Neural network
TREJECTA, 2001	Improve business relationship, to model complex business situations and compute optimal decisions	Neural network
Mohan p. rao et al.,2005	Comprehensive productivity analysis	Expert system
Patrik kutilek 2005	Strategic management	Neural networks, genetic algorithms and fuzzy logic.

Eletter et al., 2010	To support loan decisions	A multi-layer feed –for ward neural network with back propagation learning algorithm
Slavici et al., 2010	Financial management	Expert systems, artificial neural networks, genetic algorithms, fuzzy systems
Thakur, J.S. 2012	Business competitiveness	Expert systems
Nenortait?,J,et al., 2009	Decision making model	Artificial neural networks(ANNs) and particle swarm optimization (pso) algorithm

Prototype expert system that efforts to provide this dissection. The significance of this work stems from the current lack of formal, integrated methodologies that go athwart productivity measurement for interpreting and evaluating performance data. This system was consolidated using spreadsheet software for the measurement part and expert systems development software with an interface to spreadsheets for the rest. It incorporated rules for recognising time series patterns as well as the degree of severity.

V. CONCLUSION

This review elucidates that artificial intelligence techniques have been availed for a variety of purpose in business management. Some of the authors have exploited the heuristic method for employee scheduling problem. Most of the authors have utiliseda neural network for advancing business relationship, for decision-making model and for strategic management. From the above study, we can say thatthe neural network is the most renowned technique among business managers for several purposes.

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