

Artificial Intelligence as an Enabler for Developing Business Systems

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INTRODUCTION

Decision making in any business is considered to be a primary activity. All managerial activities revolve around decision making. Business executives in enterprises are the decision makers. Enterprises have executives at the various levels in their organizations. Some of them are assigned the task of taking decisions in their functional areas. Executives at the senior management level will take the responsibility of taking decisions for the various business activities. Their decisions are considered to be policy making decisions. Their policy decisions will be in the areas such as Capital investment purchases, setting targets for production and marketing of their products. Their other policy decisions will be related to other important activities and functional areas related to their business. Effective information systems in an enterprise will facilitate the executives in taking decision. Over a period many new concepts have emerged in the discipline of information and communication technology. These concepts have provided a scope for designing and developing a business model to suit the business needs of an enterprise. One of the concepts that recently emerged is artificial intelligence. It is gaining importance in the present business scenario for multiple reasons. One of the reasons is the severe competition in the global market. This chapter mainly talks about the importance of the concept of artificial intelligence in designing and developing decision support systems for the enterprises.

Background

In earlier years the process of decision making was considered to be an art and a special talent. This talent was acquired by executives over a period through their experience. It was an art because a variety of individual styles could be used in approach and solving the same types of issues or problems related to a business. Their styles have been based on creativity, judgement, intuition, and experience. Their approach is not the basis of systematic quantitative methods (Efraim Turban, Jay E Aronson, and Ting-Peng Lang, 2006). In the present business scenario, business and its environment are becoming more complex day by day. Business executives need to equip themselves and keep changing in their approach for taking decisions in the present changing scenario.

Changes in Decision Making Process

The process of making a decision has become more complicated and difficult. This is because of several reasons. First reason, there are several alternatives available much more than earlier days. The advancements in the discipline of information and communication technology have also created many alternatives for decision making process. The second reason is the cost of making errors can be large because of the complexity and magnitude of business operations. Continuous rapid changes in business

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environments are forcing the business executives to change the method of decision-making process. This can be considered as a third reason. Finally responding quickly to the changes in the market is forcing the business executives to change their decision-making process (Efraim Turban, Jay E Aronson, and Ting-Peng Liang, 2006).

Decision Support Systems in Enterprises

Management information systems facilitate business executives to take a decision in the areas of budgets, financial analysis, and business forecasting. The process of taking decisions in this area is generally considered to be as a structured approach. The category of semi structured decision process covers such as production scheduling, inventory management, new product designs and quality assurance. Ready-made software packages related to customer relationship management, supply chain management, and knowledge management are available in the market. These software packages facilitate the decision process in the above areas. The decisions pertaining to investment in acquiring hardware and software, new technology, planning in research and development can be considered as an unstructured decision process. Software related to knowledge management system, expert system, and enterprise resource system is generally developed within one's organization for taking business decisions. This is because of the sensitivity of the data for taking decisions in an enterprise (Janakiraman V S, Sarukesi K, & Gopalkrishnan P, 2017)

Concept of Decision Support Systems

Decision support systems are designed and developed by the combination of the intellectual resources of individuals and the concepts of information and communication technology. These decision support systems facilitate in improving the quality of decisions taken by the executives. It is interesting to note that many decision support systems are the result of making use the concepts emerged in the discipline of information and communication technology over a period. In the case of supply chain management, the stakeholders are vendors of components, production department in an enterprise, and the customers of the enterprise's products. The software is developed based on the interactions of the stakeholders of the supply chain management. The knowledge management systems are the result of the participation of the employees of an enterprise by sharing their knowledge and experience. It may be noted that the role of the stakeholders is important in creating a decision support system for an enterprise. In the present business scenario, the concept of artificial intelligence is gaining importance for designing and developing decision support systems for an enterprise.

Technology Trends

Several technologies in the discipline of information and communication technology directly and indirectly play an important role in decision support systems. Many new technologies have been around for decades. These technologies have become feasible after the easy availability of inter connectivity between the computer systems (Khanna V K, 2004).

Evolution of Artificial Intelligence

The development of artificial intelligence has mainly four stages. First in the year 1956 a group computer scientist at Dartmouth college have discussed the great potential of computer applications. They were

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