Research Paper   **Management**

Impact of Artificial Intelligence in Business

*Mrs. A. Anitha Supriya Joseph **Ms. B. Sarumathi *** Ms. B. Saranya

*Assistant Professor, Vivekananda Institute of Management Studies, Coimbatore.

**Assistant Professor, Vivekananda Institute of Management Studies, Coimbatore.

****Assistant Professor, Sri Ramakrishna College of Arts and Science for Women, Coimbatore.

ABSTRACT

Artificial intelligence is a technology that focuses on creating intelligent machines that are capable of simulating human intelligence. A new generation of AI has emerged to improve business decision making, forecasting and managing customer relationship. As a result of this, AI attempts to minimize the human thought process including the reasoning and optimization and improves the overall efficiency and performance of the organization. This paper discusses how AI is being used to improve accuracy and thus makes a positive contribution to enhance sales, and explores the challenges and opportunities of business. The paper also examines the present trend of AI and describes how AI could be used to refine the overall efficiency and performance of organization and concludes that AI will continuously grow both in demand and practice

Keywords : Artificial Intelligence, Customer Relationship Management, Neural Networks

Introduction:

The emergence of AI in business is to improve machine behavior in tackling complex task. AI helps humans to understand the process by recreating it, then potentially enabling us to enhance it beyond our capabilities. In turbulent business environment AI leads to significant competitive advantage. The overall market for AI related systems is growing rapidly. Presently, the United States accounts for over 60 percent of an estimated $900 million global AI market. One purpose of AI is to help organize and supply information for the management decision-making process in such a way as to improve overall efficiency and performance. A new generation of artificial intelligence technology has emerged that holds considerable promise in helping improve the forecasting process including such applications as product demand, employee turnover, cash flow, distribution requirements, manpower forecasting, and inventory.AI is a broad discipline that stimulates numerous innate human skills such as automatic programming , case based reasoning,neural networks decision making , expert system, natural language processing, pattern recognition and speech recognition.

Artificial Intelligence Techniques Enhance Business Forecasts

Today's business world is driven by customer demand. Unfortunately, the patterns of demand vary considerably from period to period. This is why it can be so challenging to develop accurate forecasts. Forecasts are based on quantitative analysis, qualitative analysis or a combination of both. The resolution of these two approaches is how forecasting error occurs and presents an opportunity for using AI methods. The goals of forecasting are to reduce uncertainty and to provide benchmarks for monitoring actual performance. Technology based forecasts tend to focus on new product/service development.
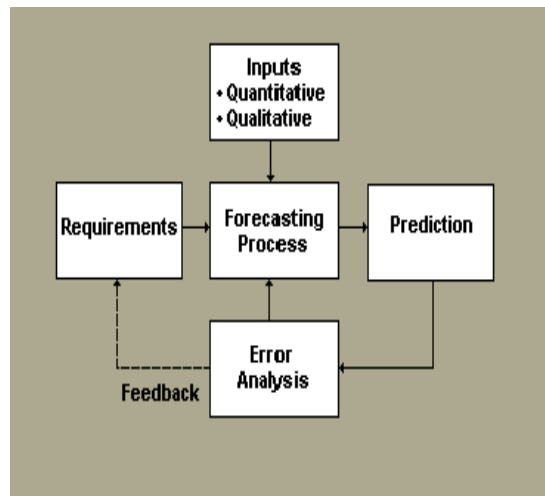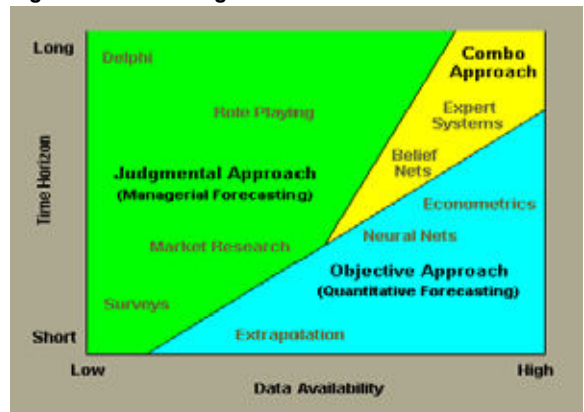

Figure 1: Forecasting Process

Figure 2: Judgmental vs. Objective Forecasting

A form of artificial intelligence, neural networks provides significant process of economic forecasting. Neural networks have been used in various fields such as medicine and robotics for several years, recently AI made an impact as a serious business tool. Artificial intelligence (AI) techniques are being used to improve the accuracy of forecasts and support planning and decision-making processes.

Used in this way, the system can automate the process of both qualifying and quantifying marketing prospects and forecasting demand.
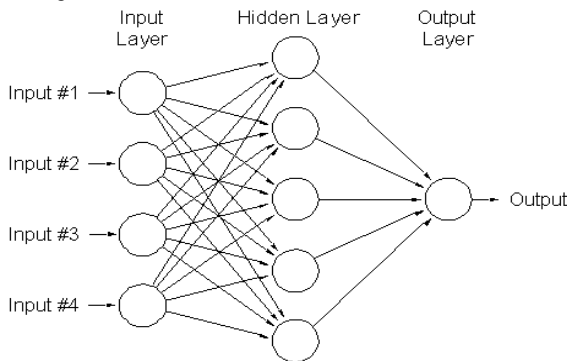

Figure 3:Typical Neural Network

Neurons are arranged in several layers called input, hidden, and output layers (Figure 3). The input layer is similar to a matrix of independent variables in a regression while the output layer is the dependent variable. The hidden layer is the series of relationships calculated in the network's training process. There will be one or two neuron receiving "signals" from each one of the neurons in the input layer. These signals are the input value of the independent variable, multiplied by a given weight. After receiving all the signals, neuron hidden layer sums them up. This weighted sum is its input. The output of this neuron (namely the signal that it submits to the output layer) is a nonlinear transformation of its input. This process takes place simultaneously in each neuron in the network. There are no interconnections among neurons of the same layer. Most neural networks have some sort of training rule whereby neural networks learn from examples and exhibit some structural capabilities for forecasting. Neural networks program seeks to find a system of connective weighting among the layers that result in a minimum of error between the network's outcome and the actual answer. Each outcome generated by the network is compared to the actual figure at any point in time. If the network gives the "correct" answer no changes are made to the weights. If the network makes an incorrect prediction, the internal values of the neuron links are automatically adjusted via a training algorithm, it continues until the network learns to make the correct prediction.

Artificial Intelligence In Recruitment Process
One of the biggest challenges we face today in human resource Management is adapting the HR recruitment process to meet the demand and needs of Global academy .The mission is to bring through the latest breakthrough in automation with a focus of artificial intelligence to HR recruitment in order to meet this challenge. This mission will be achieved by realizing the opportunities and addressing the challenges presented by globalization with regard to HR recruitment. This breakthrough idea is creating a new artificial intelligent software to streamline the HR recruitment process by freeing the HR managers, recruiters and employers from recruitment task .

Automated Application Processing
AI intelligently parses resumes to source this information and extract it into the format desired – a patented tagging technology that is over 95% accurate – the most precise in the industry .Whether a resume has been submitted in Word, PDF, or one of over 100 formats, AI can analyse it.

AI leading-edge Statistical Natural Language Processing (SNLP) technology extracts the full range of resume data into standardized, export-ready formats (including HR-XML). This means that resumes can be extracted into uniform formats for side-by-side review and effective presentation to hiring managers.

AI resume and job description parsing and matching is fully automated. No manual review or editing is required.

Matching Job Descriptions to Resumes
Quantified Matches!
Artificial technology calculates the mathematical probability of a match. AI tells us how well a resume matches a job description on a scale of 0 to 100%.

Fast, Easy, Flexible
Recruiters can manage the deluge of resumes by setting thresholds of acceptance, speeding up the screening process.

Consistent & Reliable
AI offers an objective and reliable way of screening resumes, eliminating the potential for errors.

Talent Pool Management / Effective Searches

AI rapidly searches large databases, finding and ranking the applicants that best match a particular job or the jobs that best match a particular applicant. Quickly and in high volumes.

Resume Cloning
If only recruiter could clone perfect employee? Select a 'model' resume and AI will search the database for applicants with similar resumes.

Skills Database
AI translates the many different ways people describe their skills and job experiences into a common language to enable better matching. It even predicts additional skills an applicant is likely to have.

Flexible Skills Catalogue
AI offers an extensive library of skills, it also accommodates your existing skills catalogue.

Skills Prediction
Based on the skills extracted from a resume, AI predicts additional skills the applicant might have. For example, if a resume lists Java as a skill ,AI predicts that the applicant might also know JavaScript and cfml.

Artificial Intelligence In Customer Relation Management
Success of a business depends on market and business environment. Customer Relationship Management (CRM) are developed to retain the existing customers as well as find new ones.

The idea of customer relationship through technology had evolved when web based buying and selling become possible. In this case companies store the information of customers like their preferences, needs, patterns of purchase and use this information to set product price, terms and tailor product to the choice of customers. The CRM includes the total processes of building a relationship with customers and maintain it in a win-win environment. The CRM software includes the advancement of analyzing ability of the customers' information retained in the system. This may include customer order processing applications, apply artificial intelligence to develop preference database from inquiries, product tailoring by customers' demand, targeting by behaviors, add new product features in responses to customers' demand and more depending on product and services of the organization.

CRM system eases the customers to find information of the product firmly. And eventually let the customer gets into the

system to leave and find information to and from the system. Organizations who use the customer database are expert to design it in a way so that from the web, information can be warehoused. The main features of typical CRM software include:

a. Customers' data collection from any contact point of existing and prospective customers,
b. Data analysis ability by implementing intelligence for managerial decision making,
c. Sales automation technology that attract the customers by offering relevant benefits.

Oracle CRM, My SAP CRM and Salesforce.com are some of the leading vendors of CRM software. CRM software saves money spends on marketing by retaining customers and find new ones by gathering information from all possible point of customer interactions.

Table1 provides a simple illustration of how AI could be used to refine a marketing strategy based on three customer behavior factors: profit margin, retention probability and potential long-term value to the firm.

Table 1:Customer Behaviour vs Marketing Strategies

Profit Margin	Retention Probability	Long Term Value	Strategy
Low	Low	Low	Reduce marketing resources
Low	Low	High	Market distinct product portfolio
Low	High	Low	Examine up-sale opportunities
Low	High	High	Market missing products
High	Low	Low	Refocus marketing effort
High	Low	High	Re-attract these customers
High	Low	Low	Increase marketing resources
High	High	High	Pursue these customers

Real-Time Customer Service using Artificial Intelligence
Customer service has become a critical factor for compet-
itive advantages in a market crowded with offerings where product features and price no longer provide the differentiation. Services can be provided to customers through many types of operations that include call centers, help desks, and online self-service. Effective customer service can enhance customer retention, improve customer loyalty, and advance cross-selling and up-selling opportunities. Using technologies in e-business, knowledge management and business intelligence, real-time customer service provides quick and accurate responses to customer needs. It can be provided in response to general inquiries, complaints, product issues, billing errors and other customer situations. It can also be used in a proactive and preventative manner in the anticipation of customer situations.

Real-Time Marketing and Sales using Artificial Intelligence:
Real-time technologies can be used in many aspects of marketing operations such as online marketing campaigns, online promotional programs, online advertising, and online surveys. New real-time target marketing strategies have emerged, including automatic personalized email responses and location-based marketing . Salespersons in the field can get up-to-the-minute information about a customer before sales calls and can update the customer account in real-time. In B2B, manufacturers are sharing real-time information, product configurations, and order fulfillment systems with their sales channel partners Real-time monitoring of point-of-sales and inventory information across the supply chain is critical to an on-demand sales strategy where inventories can be replenished based on actual sales.

Conclusion
A business enterprise needs to be agile and responsive in the digital economy to differentiate itself in a crowded market where product and price no longer provide the necessary distinctions. The ubiquity of the Internet has changed the dynamics of how businesses are conducted, from batch to real-time. Artificial Intelligence has great practical significance for managers dealing with forecasting, recruitment, marketing, sales, and customer service operations where real-time decisions are often required in cross-selling, up-selling, and providing quick and accurate responses to customers.

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