© The Journal - Contemporary Management Research
2018, Vol. 12, Issue No. 2, 17 - 35.

APPLICATION OF ARTIFICIAL INTELLIGENCE (AI) FOR EFFECTIVE AND ADAPTIVE SALES FORECASTING

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ABSTRACT

Purpose

The factors that influence the true market demand and their extent of influence are highly elusive and erratic. This paper aims at applying Artificial Intelligence (AI) techniques to identify and predict complex sales patterns and compare the results with traditional forecasting models.

Design/methodology/approach

Sales data related to the sample firm was used in the study for forecast modelling using both, advanced forecasting method (ARIMA) and Artificial Neural Networks (ANNs). The latter considers inputs of influential/causal factors and revisits every time to identify new trends related to those factors, thus providing a more robust forecast. This is compared with results from the ARIMA model.

Findings

It is inferred that neural networks with the input of influencing/causal factors has a greater accuracy when compared to ARIMA model. It is also time adaptive and changes according to trends experienced in the causal factors.

Research limitations/implications

Though the purpose of the research is achieved, a few limitations exist because of the limited availability of data. Besides, the factors that affect the prediction are generalised and based on previous research works. A more customised approach towards the firm under study would greatly improve the accuracy.

Practical implications (if applicable)

Machine learning and big data are bringing paradigm changes in developing a better forecasting model. It has the potential to analyse huge amounts of data and provide instant insights that can greatly improve business performances.

Originality/Value

This paper extends the scope of previous literature by taking into account the factors that influence the sales of the automobile industry, considering the Indian market during the time period (1988-2016).

Keywords: *Sales Forecasting, Sales analysis, Neural-networks, Artificial Intelligence, Machine Learning, ARIMA.*