Singaporean Journal Scientific Research (SJSR)
ISSN: 2231 - 0061Vol.3, No.1pp.126-127

available at: : http://www.iaaet.org/sjsr

ERP – CRM Integrationby Neural Networks

Mary.AS[*] Dr. Noorjahan Arif[**]
[*]*Department of Computer Applications, Karunya University, Coimbatore, India*
[**] *Department of Environmental Management, Bharathidasan University, Tiruchirappalli, India.*
Email:Chrismary08@gmail.com, noorjahanarif@yahoo.com

***Abstract* - Enterprise Resource Planning (ERP) is a combination of all the resources of a company. ERP is mainly a computer based system. All kinds of organization data that is relating to each and every function of the organization is available in ERP. So most of the big business organizations are implementing ERP and some of the medium, small scale companies are also using ERP system. CRM in an organization helps to retain their existing customers as well as capturing new customers for their products.So it makes the organizationto produce those goods required by their consumers. This paper focuses mainly on the merging of CRM and ERP through Neural Networks.**

***Keywords*-**ERP, CRM, Neural networks, ERP-CRM integration,DBMS, ANN.

1. INTRODUCTION

ERP consists of all data which are relating to the different functions of the organization. In the Competitive world today Organizations are developing both horizontal as well as vertical wise. This paves way for accumulation of larger amount of data. By following the older method of DBMS is not enough to keep the large volume of data's. So ERP came into existence. It helps to keep the entire growing data under one system and provides all the departmental information as and when required by the concerned department. Further ERP provides valuable suggestions in decision making process. ERP system has three major parts that is client server system, database and application part or end user part (Yen et al., 2001). ERP system is operated on the basis of client server technology.

Its applications are deployed in distributed and dispersed system. Some ERP systems provide web interfaces. ERP system is always implemented through many databases. All applications in the ERP system interact with the database, which ensures the data integrity of the enterprise. ERP provides enhancements in different fields of customer relationship management such as, production, sales and distribution. It also helps the managers to take timely decision makings since it is the integration of all functional departments (McCarthy, 2000and James, 2002).

It is difficult to implement successfully since it has huge amount of information in relation with all the departments (Wen-Hsiung Wu, Chin-Fu Ho, Hsin-Pin Fu, Tien-Hsiang Chang). ERP handles all kinds of problems related with all the functions of the organization and provides good solutions (Gail Corbitt, Marinos themistocleous, Zahir Irani, 2005).

2. CUSTOMER RELATIONSHIP MANAGEMENT

Customer Relationship Management (CRM**)** comprises sequence of steps to be followed for keeping the customers for longer period of time. It is also useful to maintain a healthy relationship between the organization and the consumers (Ling & Yen, 2001). According to (Ling and Yen, 2001) and (Ngai, 2005). Swift (2001, p. 12) CRM maintains proper communication between the organization and the consumers which enables the organization to understand the feelings of the consumers. It helps the companies to get new customers, retaining the existing customers and increases the profits of the business. Since CRM helps to create intimate relationship with the consumers, the company knows what exactly the consumers want from the company in terms of product. (Peppers, Rogers & Dorf, 1999). The primary goal of CRM is to retain the old customers as long as possible in the industry (Peppard, 2000). Nowadays, in a modern society most of the business transactions are to be done through online. In return the organizations get their customers and retain them is called as web marketing (Schafer, Konstan, & Riedl, 2001).

3. NEURAL NETWORKS

Artificial Neural Networks (ANNs) are distributed and parallel information systems. It simulates the human brain to process information. It is a collective system that comprises of neurons and nodes. The nodes are connected through direct links. One or more input values are taken and they are combined as a single value, processed and produced as an output value. ANN is used in case of examining the complex relationship between the input and output variables (Nelson & Illingworth, 1994). ANN is used mostly in commercial fields like market segmentation, sales forecasting, direct marketing, new product development, and target marketing (Bishop, 1995; Callan, 1999; Curry & Moutinho, 1993; Fausett, 1994; Hassoum, 1995; Hu, Shanker, & Hung, 1999; Kim, Street, Russell, &Menczer, 2005; Zahavi & Levin, 1997; Zhang, Hu, Patuwo, & Indro, 1999).Nowadays it is applied in the area of customer relationship management (Audrain, 2002;Hackl & Westlund, 2000; Willson & Wragg, 2001). ANN is used to find out consumerbehavior and is more suitable in this area than that of any other statistical methods(Baesens et al., 2002;Viaene et al., 2002). ANN is very much useful in where the data is abnormal and having no linear relationships between them. It gives more accurate results than multiple regression Models (Bishop 1994).

4. ERP-CRM INTEGRATION

The integration of ERP and CRM produces the best results to the organizations. Any organization usually receives the customer complaints or comments first for getting feedback from them. This department is known as Customer relationship management department. Then the complaints are to be sent to the respective department. They are handled by ERP department and necessary actions are to be taken here. All the complaints received and the respective actions taken are to be stored in the database. This is known as knowledge discovery. Data mining techniques are used here to dig valuable information for the management as a whole as well as for the CRM department. The Neural networks technique is one of the best choices among the data mining techniques for integrating ERP and CRM.

5. CONCLUSION

This paper focuses that the data mining technique neural networks can be used for further research in ERP-CRM integration. This can be used in any kind of industries which has CRM and ERP departments. It helps to take valuable and optimal decisions on the customer side as well as for the entire management system.

REFERENCES

[1] First A. Abdullah S. Al-Mudimigh, Second B. Zahid Ullah, Third C. Farrukh Saleem, A framework of an Automated Data Mining Systems Using ERP Model, International Journal of Computer and Electrical Engineering, Vol. 1, No. 5 December, 2009.

[2] Wen-Hsiung Wu, Chin-Fu Ho, Hsin-Pin Fu, Tien-Hsiang Chang, "SMES IMPLEMENTING AN INDUSTRY SPECIFIC ERP MODEL USING A CASE STUDY APPROACH", Journal of the Chinese Institute of Industrial Engineers, Vol. 23, No. 5, 2006, pp. 423-434.

[3] McCarthy, Vance. "ERP Gets Down to E-Business." *HP World*, January 2000.

[4] O'Brien, James A. Management Information Systems: Managing Information Technology in the E-Business Enterprise. (Fifth Edition). New York: McGraw-Hill High Education, 2002.

[5] Yen, D.C., Chou, D.C. and Chang, J. (2001), "A synergic analysis for web-based enterprise resources planning systems", Computer Standards & Interfaces, Vol. 24, pp. 337-46. BI and ERP integration 349

[6] Ling and Yen, 2001R. Ling and D.C. Yen, Customerrelationship management: An analysis framework and implementation strategies, *Journal of ComputerInformation Systems* **41**(2001), pp. 82–97.ViewRecord in Scopus | Cited By in Scopus (25) Ngai, 2005

[7] E.W.T. Ngai, Customer relationshipmanagement research (1992–2002): An academic literature review and classification, *MarketingIntelligence, Planning* **23**(2005), pp. 582–605.FullText via CrossRef | View Record in Scopus | Cited By in Scopus (20) Swift, 2001

[8] R.S. Swift, *Accelarating customer relationships: Using CRM and relationship technologies, Upper saddle river*,Prentice Hall PTR, N.J. (2001).

[9] Peppers, D., Rogers, M., & Dorf, R. (1999). Is your company ready for one-to-one marketing. Harvard Business Review, January–February, 151–160.

[10] Peppard, J. (2000). Customer relationship management (CRM) in financial services. European Management Journal, 18(3), 312–327.

[11] Schafer, J. B., Konstan, J. A., & Riedl, J. (2001). E-commerce recommendation applications. Data Mining and Knowledge Discovery, 5(1–2), 115–153.

[12] Nelson, M. M., & Illingworth, W. T. (1994). Practical guide to neural nets, USA: Addison Wesley Publishing Company.

[13] Bishop, C. M. (1995). Neural networks for pattern recognition. Oxford: Oxford University Press. Callan, R. (1999).

[14] The essence of neural networks. London: Prentice Hall Europe Curry, B., & Moutinho, L. (1993). Neural networks in marketing: Modeling consumer responses to advertising stimuli. European Journal of Marketing, 27(7), 5–20.

[15] Fausett, L. (1994). Fundamentals of neural networks. Upper Saddle River, NJ: Prentice-Hall.

[16] Hassoum, M. H. (1995). Fundamentals of artificial neural networks. Cambridge: MIT Press.

[17] Hu, M. Y., Shanker, M., & Hung, S. M. (1999). Estimation of posterior probabilities of consumer situational choices with neural network classifiers. International Journal of Research inMarketing, 16(4), 307–317.

[18] Kim, Y. S., Street, N. W., Russell, J. G., & Menczer, F. (2005). Customer targeting: A neural network approach guided by genetic algorithms. Management Science, 51(2), 264–276.

[19] Zahavi, J., & Levin, N. (1997). Applying neural computing to target marketing. Journal of Direct Marketing, 11(4), 76–93.

[20] Zhang, G., Hu, M., Patuwo, B. E., & Indro, D. C. (1999). Artificial neural networks in bankruptcy prediction: general framework and crossvalidation analysis. European Journal of Operational Research, 116(1), 16–32.

[21] Audrain, A. F. (2002). The attribute-satisfaction link over time: A study on panel data. In Proceedings of the 31st EMAC Conference, 28–31 May 2002, University of Minho and European Marketing Academy (EMAC), Braga, Portugal.

[22] Hackl, P., & Westlund, W. A. (2000). On structural equation modeling for customer satisfaction

[23] Willson, E., & Wragg, T. (2001). We cannot diagnose the patient's illnessbut experience tells us what treatment works. International Journal of Market Research, 43(2), 189–215.