

Chapter VIII

Application of Data Mining Algorithms for Measuring Performance Impact of Social Development Activities

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ABSTRACT

Social development activities are flourishing in diversified branches of society endeavor, despite numerous hurdles inflicting on their ways that are truly cross-sectoral. They vary from providing basic human services, as such education, health, and entrepreneurship to advance maneuvers depending on the demand at the outset. However, while talking about discovering true success cases around the globe, recapitulating their thoroughfares to accumulate knowledge; and foremost, utilizing newly emerged information technology methods to archive and disseminate model cases, not many stand on their own. This has happened due for many reasons, and a few of them are; improper program design, inaccurate site selection, incorrect breakeven analysis, insufficient supply of funding, unbalanced manpower selection, inappropriate budget allocation, inadequate feedback and monitoring. Apart from them, there are many hidden parameters that are not even visible. Furthermore, these visible parameters (including the invisible) are intricately intermingled to one another in such a way that lagging of one derailed the whole project and eventually the program fail. Not surprisingly, all of these parameters depend on data and information on implemented programs or projects of which they mostly lack. Thus, lack of data and information related to their appropriateness (or inappropriateness), made them failure projects, despite devoted efforts by the implementers, in most cases. This chapter has tried to focus on data mining applications and their utilizations in formulating performance-measuring tools for social development activities. In this context, this chapter has provided justifications to include data mining algorithm to establish monitoring and evaluation tools for various social development applications. Specifically, this chapter gave in-depth analytical observations to establish knowledge centers with various approaches and finally it put forward a few research issues and challenges to transform the contemporary human society into a knowledge society.

INTRODUCTION

All information pertaining to a successful organization is truly its asset. Information, such as client lists, vendor lists, product details, employee information, and corporate strategy, is invaluable. Without appropriate feeding of information, a business cannot operate properly (Utimaco, 2005). This is potentially true for any sort of ventures that may vary from providing services to the scientific community or academics or civil society or individuals. However, to take an intelligent decision, the information needs to be processed and compiled.

Data mining is a method of collecting and processing of data and eventually assisting to take knowledgeable decision. In today's modern information based environment, data mining is day by day coming at the front and beginning to acquire more and more attention. Because data mining is all about acquisition, assessment and analysis, and by automatic or semiautomatic means huge or small, all quantities of data can help to uncover meaningful patterns and rules. These patterns and schemes help enterprises improve their marketing, sales and customer support operations to better understand their end users. Over the years, corporate houses have accumulated very large databases from applications such as enterprise resource planning (ERP), client relationship management (CRM), or other operational systems. People believe that there are untapped values hidden inside these data, and data mining techniques can help these patterns out of this data.¹

Currently data are being collected and accumulated across a wide variety of fields at an exaggerated pace. Data are no more a rigid matter for an entrepreneurship, or an organization, but have become an intrinsic part of any management process and most dynamic in nature. For these reasons, data mining algorithms are imperative to researches in the aspect of making intelligent decisions through data mining. To cope up with

this new arena of research, there is an urgent need for a new generation of computational theories and tools to assist humans in extracting useful information (knowledge) from the rapidly growing volumes of digital data.

At the same time, data mining and knowledge discovery in databases have been attracting a significant amount of research, industry, and media attention (Boulicaut, Esposito, Giannotti & Pedreschi, 2004; Bramer, 1999; Fayyad, Piatetsky-Shapiro & Smyth, 1996; Freitas, 2002; Kargupta & Chen, 2001; Kloesgen & Zytkow, 2002; Larose, 2004; Miller & Han, 2001). This chapter provides a brief overview of this emerging field, clarifying how data mining and knowledge discovery in databases are related to each other, and especially focused on application of data mining algorithms in establishing social development management systems. In this aspect, this chapter intends to illustrate a few real-world applications, but specifically focused to data mining algorithms; challenges involved in those applications of knowledge discovery, including contemporary and future research directions in the arena of establishing knowledge centers to assist the society for taking intelligent decision.

Along the way, this chapter tries to provide a few hints on data mining algorithms and put forward a few illustrations with which data mining algorithms may be applied for making decision support systems. Furthermore, this chapter has endeavored to justify on several models on establishment of knowledge centers. The author finds that knowledge centers (information center, kiosks, community information centers) are being established in many countries during the last decade with aspirations for assisting the grass roots communities. However, until now, not many researches are being conducted to measure their impacts in the society, or any cost benefit analyses have carried out.

In recent years, many countries have seen evolution of telecenters in various forms, ranging from kiosks, information centers, community

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