Chapter IX
Prospects and Scopes of Data Mining Applications in Society Development Activities

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ABSTRACT

Society development activities are continuous processes that are intended to uplift the livelihood of communities and thereby empower the members of communities. Along the way of socialization, these sorts of activities have become intrinsic phenomenon of a society, though, day-by-day their developments are intricately adopting innovative scientific techniques. Innovations and technologies, especially, the information and communication technologies have graced the development actors with dynamically improved tools and techniques to design, develop and implement diversified performances globally. Rapidly developed new ICTs gave the development initiators tremendous boost to take many indigenous that are geographically dispersed, but could easily be monitored. However, many of the development projects lack of proper management, thorough analysis, appropriate need assessment, and seemingly could not sustain. In most cases, development partners blame each others, among them are the initiators, designers, implementers, or the donors. Subsequently, in many countries, most innovative success cases could not see the light of sustainability, due to improper reporting, monitoring, and feedback. In consequences, projects fail. This chapter tries to establish methodologies for establishing successful development initiatives, synergizing a few success cases. Furthermore, utilizing recently available means, as such data mining, projects and activities around each corner of the globe can be easily recorded, adequately analyzed, monitored, and reported for their successful replication in other countries with necessary favorable condition exists. This chapter also highlighted a few areas of development aspects and hints application of data mining tools, through which decision-making would be easier. Along this perspective, this chapter has put forward a few potential areas of society development initiatives, where data mining applications can be engaged. The focus area varies from basic education, health care, general commodities, tourism, ecosystem management to a few advanced uses, including database tomography. Finally, the chapter provides some future challenges and recommendations in terms of using data mining applications for empowering knowledge society.

INTRODUCTION

Data mining is an interdisciplinary field of study and it is driven by various multidimensional applications. At one hand it involves techniques for machine learning, pattern recognition, statistics, algorithm, database, linguistic and visualization; and at the other hand, one applies its applications to understand human behavior, such as that of the end user of an enterprise (Ebecken, Brebbia & Weigend, 2000; Han & Kamber, 2000; ICDM, 2003). It also assists entrepreneurs to understand the nature of transactions involved, including those needed to evaluate any risk factor or detect fraud.

Apart from the intricate technology context, the applications of data mining methods deserve specials attention while to be applied in the development context. Lack of data has been found to inhibit the ability of organizations to fully assist clients, and lack of knowledge made the government vulnerable to the influence of outsiders who did have access to data from countries overseas. Furthermore, disparity in data collection need for a coordinated data archiving and data sharing, and it is extremely crucial for promoting, launching and sustaining development projects especially in developing countries (Berry & Linoff, 2000; Codata, 2002; COL, 2003).

At the same time, the technique of data mining enables governments and private organizations to carry out mass surveillance and personalized profiling, in most cases without any controls or right of access to examine this data. However, while utilizing data mining applications in terms of development contexts, the main focus should be on sustainable use of resources and the associated systems under specific context (producing ecological, limnological, climatic, social and economic benefits) of developing countries. Research activities should also focus on sustainable management of vulnerable resources and apply integrated management techniques, with a view to support optimization and sustainable use of existing resources.

In addition, the scientific issues and aspects of archiving scientific and technology data include the discipline specific needs and practices of scientific communities as well as interdisciplinary values and methods. Data archiving is primarily a program of practices and procedures that support the collection, long-term preservation, and low cost access to, and dissemination of scientific and technology data. The tasks of the data archiving include: digitizing data, gathering digitized data into archive collections, describing the collected data to support long term preservation, decreasing the risks of losing data, and providing easy ways to make the data accessible. Data archiving and the associated data centers need to be part of the day-to-day practice of science. This is particularly important now that much new data is collected and generated digitally, and regularly (Codata, 2002; Dunham, 2003; Quéau, 2001).

So far, data mining has existed in the form of discrete technologies. Recently, its integration into many other formats of information and communication technologies (ICTs) has become attractive as various organizations possessing huge databases began to realize the potential of information hidden there (Fayyad, Piatetsky-Shapiro, Smyth & Uthurusamy, 1996; Hernández, Göhring & Hopmann, 2004). The Internet can be a tremendous tool for the collection and exchange of information, best practices and vast quantities of data. But it is also becoming increasingly congested and its popular use raises issues about authentication and evaluation of information and data. The growing number and volume of data sources, together with the high-speed connectivity of the Internet and the increasing number and complexity of data sources, are making interoperability and data integration an important research and industry focus. Incompatibilities between data formats, software systems, methodologies and analytical models are barriers to easy flow and creation of data, information and

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