

Chapter 17

Data Mining and the Project Management Environment

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ABSTRACT

The chapter illustrates how data mining and knowledge management concepts may be applied in a project oriented environment for both the private and public sectors. It identifies the project environment success roadmap that consists of four levels leading to project corporate success. Processes that control the dataflow for generating the projects data warehouse are identified and the projects data warehouse contents are defined. The rest of the chapter shows how data mining may be utilised at each project success level to increase the chances of delivering profitable projects that will have the intended impact on the corporate business strategy. The general conclusion is that there is a need to structure and prioritise information for specific end-user problems and to address a number of organizational issues that may facilitate the application of data mining and knowledge management in a project oriented environment. Finally, the chapter concludes by identifying the issues that need to be addressed by private and public sector organizations so that data mining may be utilised successfully in their decision making process.

INTRODUCTION

According to Bala (2008), data mining deals with the principle of extracting knowledge from large volume of data and picking out relevant information that finds application in various business decision-making processes. By its very nature the project oriented environment deals extensively with data,

information and knowledge for a wide spectrum of decision-making scenarios. This direct and robust linkage of data mining with a project oriented environment will be illustrated throughout this chapter by demonstrating how data mining may be applied to resolve issues raging from assessing whether a proposed project is aligned with the strategic direction of an entity to the delivery of the project outputs and outcomes.

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Two critical points must be emphasized. Firstly, no matter what your profession is, whether it is marketing, engineering, manufacturing or ICT development and whether you work for the private or public sector, you will at one time or another be involved in undertaking projects. Secondly, to keep clients satisfied, private and public sector organizations are continually faced with the development of products, services, and processes with very short *time-to-market* windows combined with the need for cross-functional expertise. In this scenario, the application of data mining in a project oriented environment becomes a very important and powerful tool for those organizations that understand its use and have the competencies to apply it.

A project management environment provides many challenges. As a project moves through its life cycle the issues involved become numerous. Some of these issues include managing the project portfolio; having a mechanism in place to capture and share project lessons learnt; maintaining the critical project data flow processes; defining project scope; preparing project bids; planning and controlling projects; and assessing project risk. Hence, the road leading to success in a project oriented environment is a long and difficult one. Many of the concerns related to the issues highlighted above may be mitigated through the application of data mining tools by the thorough sifting and analysis of data related to projects previously undertaken.

Private and public sector organizations that are involved in delivering projects normally possess a tremendous amount of data related to past and current projects. This voluminous historical projects data is often by itself of low value. However its hidden potential needs to be exploited for various purposes within the project life cycle to ensure the achievement of the business objectives and more specifically corporate success. Executive management must seek ways to exploit data to add value to processes and create a new reality in terms of establishing innovative practices by

capturing intelligence and knowledge across the organization. Hence, the project oriented environment with its extensive data generating capability and capacity has a direct potential link with data mining application concepts for private and public sector organizations.

Data mining techniques have been successfully applied to various private sector industries in marketing, financial services, and health care. Governments are using data mining for improving service delivery, analyzing scientific information, managing human resources, detecting fraud, and detecting criminal and terrorist activities. However, literature is scarce regarding the application of data mining to a project oriented environment. Generally, the purpose of this chapter is to show how data mining concepts may be applied in a project oriented environment. It will examine the so called project success framework and show how data mining may be utilised at particular stages to increase the chances of delivering successful projects that will have the intended impact on the corporate business strategies of private and public sector organizations.

DATA MINING AND THE PROJECT MANAGEMENT ENVIRONMENT CONTEXT

Cooke-Davies (2002) argue that the ultimate aim of an organization should be to introduce practices and measures that allow the enterprise to resource fully a portfolio of projects that is rationally and dynamically matched to the organization's business objectives and corporate strategy. These practices and measures cover a spectrum of tasks, such as transforming data to information and information to knowledge thus optimizing the information value chain of an organization and therefore its ability to bring projects to a successful conclusion. Sutton (2005) identifies four distinct levels of project success, with each level having its own discipline, tools and techniques. Thus, excellence

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