

BUSINESS MODELING AS FOUNDATION IN DEVELOPING DATA MINING TOOLS

Case of Automobile Warranty Data

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Abstract: Using business models is essential for successful contemporary management. A model represents understanding about the real life domain and reflects its essential traits. Another characteristic of today's management is availability of huge amount of accessible and searchable data accumulated over executing business activities. Exploring those data to increase domain understanding and to build models, which further can be used to support decision making is the essential task of the emerging area of business intelligence and especially data mining. The process of modeling based on business data analysis to build decision support tools is discussed via sharing the experience acquired in a data mining project. The project aimed at discovering factors influencing the warranty cost in automobile industry. The warranty data analysis has to serve for solving two different tasks: (i) design of warranty policy. Warranty is an important marketing tool, used to share the risk of failures between all customers. This share is included into the product's price. Also, warranty is an important advertising and promotional tool – warranty coverage encourages the customers to purchase the product. In its both purposes, the warranty policy requires careful analysis related to the cost, which influence pricing and overall marketing policy. (ii) increase the reliability of cars. Warranty data contains information about the most common problems leading to failures. Warranty analysis helps to identify priorities and directions for improving the products. Or how to improve the cars and to reduce the warranty cost. An iterative research process of developing and exploring models to facilitate data analysis is presented. The process includes the following phase: data collection; data research; modeling; defining analytical procedures to expose the discovered patterns; development software tools to support use of the analytical procedures. Interpretation of discovered patterns provides the necessary arguments in design of software tools for regular ongoing business analysis to support decision making. The applied methodology represents a good practice in specifying, designing and implementing components of a data mining application.

BRIEF BIOGRAPHY

Dimitar Christozov is a Professor of Computer Science at the American University in Bulgaria, Blagoevgrad 2700, Bulgaria since 1993 and at the University of Library Studies and Information Technologies since 2002. He has more than 30 years of research and education experience in areas as computer science, applied statistics, information systems. His recent interests are in the field of business intelligence and data mining. He graduated Mathematics from Sofia University "St. Kliment Ohridski" in 1979. He completed his PhD thesis "Computer Aided Evaluation of Machine Reliability" in 1986. and DSc thesis "Quantitative measures of the quality of informing" in 2009. In ICTT "Informa" (1986-1993) Dr. Christozov was

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