

Chapter 2

Identification of User Preference for Multi-Criteria Reporting in Business Intelligence: A Case Study on Banking Business

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ABSTRACT

Business intelligence (BI) is an integrated set of tools used to support the transformation of data into information in order to support decision making. Among different functionalities, reporting plays a significant role that provides information to its readers to make better decisions. BI lacks user-specific reporting to the different levels of users of an organization. Different users require different kinds of reporting with respect to different requirement (criteria) in an organization. A multi-criteria reporting (MCR) finds the suitable information to suitable user based on the multiple conflicting preferences of a user. Technique for order preference by similarity to ideal solution (TOPSIS) is the most popularly applied multi-criteria decision-making (MCDM) technique selected to identify different levels of user preference for MCR. Banking business is considered as a case study to identify user preference for MCR. This research also designs evaluation metrics for TOPSIS.

1. INTRODUCTION

Report is methodical, well-organized document that defines and analyzes a certain issue or a problem and recommends solution. It also presents, the expected performance and future outcomes of an organization. There are different kinds of reporting methodologies such as informative report, interpretative report, summarized report and so on. In this modern business environment, business analysis and reporting are influenced by BI. It provides comprehensive solution to different business domains and it reports to different levels of users of an organization. To address the needs of today's innovative, rapid and dynamic business environment the role of BI is significantly very important.

BI is an integrated set of tools used to support the transformation of data into information in order to support decision making (George et al., 2015), (Rouhani et al., 2012). It analyses the performance of an organization, increases its revenue and competitiveness (Trumpy et al., 2015), (Hsieh, 2011). A Business Intelligence System (BIS) environment consists of data source, analytical techniques and reporting tools (Foster et al., 2015). The different functionalities of BIS are problem driven and comprehensive data collection strategies for information extraction process (Thiagarajan et al., 2011), (Chung & Tseng, 2012), providing a rapid analytics to make a better and quicker decisions (Genc et al., 2013), (Foster et al., 2015) and reporting (Larson & Chang, 2016).

Among different functionalities of BIS, reporting plays a significant role and it forecast the expected performance and future outcomes of an organization. BI provides better reporting with minimal training cost (Gounder et al., 2016). An organization has different levels of users and makes decisions from different kinds of information (Tobias & Trindade, 2011). Hence, customized report should be developed based on the requirements of the users of the organization. BI reporting lacks user specific reporting to the different levels of users of an organization according to the criteria (Miller et al., 2016). To address user specific reporting, Multi Criteria Reporting (MCR) is developed which can be customized according to criteria (Fairwarning.com, 2016), (Martin et al., 2014), (UNDP, 2011).

MCR is originated from business analysis process. It requires a reporting, which may be static report targeting all level of users (Hinze et al., 2009). The levels of users are from top management to customers and common users (Mohammad & Rosnah, 2011). Instead of a normal business reporting a customized business reporting finds suitable information to suitable user at right time (Martin et al., 2015). To customize the information, user preference should be identified according to various criteria (Moro et al., 2014). Multi Criteria Decision Making (MCDM) techniques have been applied to structure and solve decision making problems involving multiple criteria (Hemmati et al., 2016). In this research, most widely used MCDM technique, Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) is applied to find the user preference for MCR (Obayiuwana, 2015).

The rest of the paper is organized as follows. Section 2 describes the literature review on BI functionalities, TOPSIS applications and its evaluation metrics. It also describes about different evaluation parameters developed for MCDM applications. Section 3 describes the metrics designed for TOPSIS and section 4 designs the MCR for banking application, section 5 describes the experimentation details for MCR, section 6 discuss the results and section 7 concludes the paper.

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