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Organizational Productivity and Performance Measurements Using Predictive Modeling and Analytics (Advances in Business Information Systems and Analytics)

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Chapter 2

Structural Equation Modeling Algorithm and Its Application in Business Analytics

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ABSTRACT

Structural Equation Modeling (SEM) is a statistical-based multivariate modeling methods. Application of SEM is similar but more powerful than regression analysis; and number of scientists using SEM in their research is rapidly increasing. This review article algorithmically discusses the SEM methodology. SEM strategies, SEM steps and SEM stages are introduced in this article; validity tests are presented as well. Novelty of this article is in modified steps of SEM application in modeling strategies, also in its developed practical comprehensive SEM application flowchart. This article is a roadmap for business advisors and those scholars trying to compute SEM for their decision making, complex modeling and data analysis programming.

INTRODUCTION

Structural equation modeling, also known as SEM, is referred to as one of the most effective multivariate statistical tool for analysis. The extent to which SEM's technique is applied to relationship analysis simply ranges from independent and dependent variables to complex analysis of measurement equivalence for first and higher order constructs (Cheung 2008). The framework for developing and analyzing complex relationships among a number of variables is flexible and also permits researchers to test the theory's validity through empirical models. Perhaps its prominent strength is in its capacity to manage errors in measurement, which is among the greatest limitations of most studies. A couple of years back Gonzalez, Boeck and Tuerlinckx (2008), Beran and Violato (2010) and numerous different researchers classified it as a "most of the time" used technique. "With SEM's strength as a statistical tool to analyze complex relationships among variables, and even posit and test causal relationships with non-experimental data, it allows researchers to explain the development of phenomena" (Beran, et al. 2010). The utilization

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