Editorial to the Special Issue on “Non Standard Analysis of Customer Satisfaction Survey Data”

All over the world, organizations are increasingly interested in retaining existing customers while targeting non-customers. Measuring customer satisfaction provides critical information on how an organization is providing products or services to the marketplace. Customer Satisfaction is a complex concept that cannot be easily observed and, therefore, should be measured through variables connected to various aspects of the offer and to the level of satisfaction itself.

In order to measure Customer Satisfaction, survey questionnaires are used, in which respondents are asked to express their degree of satisfaction with regard to multiple aspects of the product or service. Statistical analysis of data from these surveys is carried out and measures of various aspects and overall satisfaction are obtained. Nonetheless, this data is non-trivial to handle because of the subjective nature of the observed variables.

First of all, the relevance and weighting of the variables that determine the level of satisfaction is unknown. In addition, these variables often have an ordinal measurement scale which needs to be suitably dealt with. Moreover, the level of satisfaction is generally dependent on both expectations and individual characteristics of respondents as well as on contextual variables. Surveys contain also measurement errors caused by the subjective nature of the variables and by cognitive dissonance that can affect data with undesired consequences on the reliability of the results. With the objective to handle, or at least to control, some of these problems, many different methods to assess Customer Satisfaction have been proposed in the literature. *Quality Technology and Quantitative Management* presents, in two parts, a special issue of papers addressing the topic of "Non-Standard Analysis of Customer Satisfaction Survey Data". We hope that these papers will advance the analysis of customer satisfaction surveys data in many directions and promote its adoption among practitioners.

Most of the authors in this issue have accepted the challenge of applying their techniques to a standard set of data collected from 266 companies (customers) participating in the ABC Annual Customer Satisfaction Survey 2004, conducted by KPA Ltd. The Data refers to a questionnaire consisting of 81 questions. The dataset is available at the website http://www.economia.unimi.it/projects/CSProject/. Descriptive variables for each customer include: country, industry segment, age of ABC’s equipment, profitability, customer seniority and position of respondent. The first part of the questionnaire consists of: an assessment of overall satisfaction, with two specific variables evaluated through a five-point anchored scale; a variable assessing repurchase intentions and one assessing recommendation likelihood (both measured through a five-point anchored scale); finally, a binary variable that indicates if ABC is the best supplier. In the second part of the questionnaire, there are almost fifty statements grouped according to macro dimensions: equipment, sales support, technical support, training, supplies and media, workflow and
solutions, customer portal, administrative support, terms-conditions and pricing, site planning and installation. For each statement there are two types of scores: the item evaluation score, based on a five-point semantic differential, and a measure of item importance based on a three-point anchored scale. For each macro dimension there is also an overall assessment of satisfaction expressed through a five-point anchored scale.

The first part of the special issue consists of six papers. The first one is by R. Furlan and R. Corradetti. It deals with a model which classifies customers’ requirements into Kano’s categories in a simple way. The underlying idea is to conduct two distinct analyses on the same attributes. Both analyses aim at investigating the attributes’ relationships with the target variable (e.g., overall satisfaction or loyalty), but one analysis focuses on the bottom part of the scale, while the other on the top part. The second paper is by F. De Battisti, G. Nicolini, and S. Salini. Their paper presents three different applications of the Rasch model to the ABC data in order to measure intrinsic quality and customer satisfaction levels. For each technique, they highlight its peculiarities, give an interpretation of the parameters used, analyse the model’s fit with the data, and perform a critical analysis of the results. The third paper is by F. Turini, M. Baglioni, A. Bellandi, B. Furletti, and C. Pratesi. They examine financial risk management and, more specifically, the self-assessment of business plans using survey questionnaires. The role of intangible assets is discussed, and they report on how intangible assets can be collected, how they can be represented, taking into account their semantic relationships, and how they can be used to build an analytical tool for business plans. The basic technology embedded in the tool is the construction of classification trees, a well-known technique in inductive learning. The fourth paper is by F. Bassi and its aim is to develop a tool to measure customer satisfaction with reference to the entire consumption experience of an experiential product, with specific application to cinema films. The fifth paper is by S. Figini. The author, using the ABC data, discusses the application of discrete graphical models and proposes a theoretical approach to a mixture of different types of customer data following a dynamic reasoning approach. The last paper is by L. Pagani and C. Zanarotti and it is also based on the Rasch model. Its aim is to use the Rasch parameters to perform further analysis. Estimates of individual respondent’s parameters are used as dependent variables in multilevel models to study relationships between customers’ satisfaction and other variables included in a hierarchical structure.

The second part of the special issue is also made up of six papers addressing a variety of customer satisfaction survey data analysis techniques. The first two papers apply Nonlinear Principal Component Analysis. The first one is by M. Manisera, A. J. van der Kooij, and E. Dusseldorp who investigate a structure of 14 Likert-type items measuring different aspects of job satisfaction. The second paper, by P. A. Ferrari and G. Manzi, based on the ABC data, examines the problem of setting-up a suitable indicator for the assessment of customer satisfaction. Its properties are examined, and further analysis concerning its application to real data, the treatment of missing values, and comparisons with other competitors is presented. The third paper is by I. Ograjenšek and V. Žabkar. They show that the effect of customer perceptions of sales personnel characteristics is even larger in the framework of a loyalty programme aiming at the creation of long-term relationships. The fourth article in this second issue is by M. Iannario and D. Piccolo. They present a new statistical approach to measure customer satisfaction aimed at understanding theoretical and empirical evidence about the causal relationships among motivations, personal characteristics, and expressed agreement. The fifth paper, by N. Solaro, is devoted to multidimensional scaling. A combination of sensitivity and robust analysis is proposed
to determine the stability and robustness of the results against possible perturbations or errors present in the data. The sixth paper is by J. R. Chimka and H. Wolfe. They present relative accuracy as a basis for comparing independent ordinal samples from the ABC Customer Satisfaction Survey dataset.

We wish to thank the authors for their contributions that make up this special issue. We also give our sincere appreciation to the anonymous referees who provided quality feedbacks for the manuscripts submitted. Finally, we would like to thank the editors of Quality Technology and Quantitative Management for giving us the opportunity to work on this important special issue on the analysis of customer satisfaction survey data.

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