

Chapter 9

Data Analysis and Validation of the Model

ABSTRACT

The purpose of this chapter is to present in detail the method and processes of the data analysis, and the results obtained from the analysis. Structured Equation Modelling (SEM) is adopted to test the hypotheses testing and mediators testing. This chapter also includes sample characteristics, descriptive analysis of the demographic profile of the respondents and descriptive statistics of the e-collaboration technologies. The testing of the measurement model covers tests of content validity, convergent validity, discriminate validity and reliability. The final research model results show all hypotheses have been accepted excepting Hypothesis 4. Collaboration' plays a full mediation effect on Trust and Business Performance. E-business diffusion is also a full mediation for this linked relationship. The results are reasonable according to the manufacturing e-business practices in Wenzhou.

INTRODUCTION

Based on a sound design of the questionnaire (as shown in Appendix 7), survey and sample, this section will test the validation of hypotheses detailed in Section 4. Firstly, a detailed analysis of the related analyse involving the test of validity, reliability and confirmatory factor analysis tests is carried out. Secondly, Structured Equation Modelling (SEM) is used to test the relationship between collaboration elements and business performance measures and the mediation effort on the diffusion of e-business. Finally, multiple regression analysis is used to test the antecedent

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influences from trust and organizational capacities when an organization establishes collaboration with its external business partners. The assessment of key assumption related to the use of AMOS-based structural equation modelling (SEM) for this study is discussed, and the statistical software tools used are PASW 18.0 and AMOS.

The chapter is organized into six sections. After an introduction, Section 2 presents the results of *descriptive analysis* of the demographic profile of the respondents and related data, such as the extent of collaboration, the different type of collaboration relationships, the duration of the collaboration relationship and the e-collaboration adoption (by the frequency of e-communication). It considers the data preparation such as the missing value treatment, assessment of non-responses bias and common-method bias test. The assessment of the key assumption related to use of Structural Equation Modelling (SEM) for this study has been addressed in Section 3. It provides a detailed analysis of content validity, convergent validity and discriminate validity reliability as properties of analysis of the measurement model. Followed by Maximum Likelihood based SEM analysis and summary, results of a detailed analysis of the hypotheses testing and mediators testing are discussed in Section 3.

DESCRIPTIVE ANALYSIS

Demographic data covers the key source of information for an understanding of the basic characteristics and features of respondents. The sample profile provides a decisive understanding of the general pattern of attitudes of respondents towards the collaboration in organizations. Therefore, descriptive analysis is taken to assess the characteristics of the respondent profiles and related data.

Descriptive Analysis of Data

This study seeks to understand the experiences of Chinese organizations that have already applied collaboration and e-business innovation in their business. Descriptive analysis of data is carried out on the usable sample. However, data collection through a survey cannot eliminate the ineffective data and missing values. In order to produce a quality research, missing values and other exceptions should be checked to make the analysis less affected by such inaccuracies. The data has been scrutinized in detail to check for exceptions and missing values on two aspects: for not completed responses on any of the 25 items in the questionnaire; and for responding organizations who have not collaborated with others. Organizations that have not adopted collaboration or implemented any e-technologies do not fit the criteria for inclusion in the analysis and need to be excluded. Because questionnaires are conducted face-to-face or a call contact followed by emails (as discussed in the

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