

**Methodological Implications of the Research Design in
Tourism Supply Chain Collaboration**

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18th EDAMBA Summer Academy

Sorèze, France

July 2009

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Abstract

This paper presents the methodological implications of a research design for conducting mixed-methods research examining the determinants of collaboration in the tourism supply chains. Base on the positivist's stance of a research philosophy, the proposed model derived from the Transaction Cost Economics theory (TCE) is designed to be initially verified by semi-structured interview. Then, a proposed model will be statistically tested by a Structural Equation Modelling using empirical data obtained from questionnaire survey. Furthermore, a multiple cases study will be simultaneously employed in order to triangulate the result and to gain industrial insights.

Keywords: *Supply Chain Management, Collaboration, Tourism, Transaction Cost Economics, Mixed-methods research, Structural Equation Modelling, Multiple Case Studies, Triangulation.*

1. Introduction

Tourism is widely recognised as a significant economic sector (UNWTO 2009, Zhang et al. 2009). In 2007, there were approximately 903 million international tourists around the world. They also spent approximately USD 856 billions. The growth rate of tourism income and number of tourists are 5.6% and 6.6% respectively (UNWTO2008). While tourism is playing a significant role in the global economy, supply chain management is also becoming as essential part of business management as a competition is not between companies by supply chains (Christopher 2005). However, there is a limited number of research on supply chain management in tourism. A systematic literature review using main database (*EBSCO, Scopus, and ScienceDirect*) found that there is no empirical study that investigates the drivers of supply chain collaboration in tourism (See Appendix A). Therefore, this research aims to empirically study the factors affecting supply chain collaboration in tourism.

Research question:

What are the determinants of supply chain collaboration?
And how they influence the level and characteristics of the collaboration?

2. Background

2.1. Tourism supply chain

Although tourism has been studied for ages, a term of ‘tourism’ seems to be ambiguity even among academics. For instance, *tourism*, *travel*, and *hospitality* are overlapped terms. This research will have a scope that focuses on tourism defined in Figure 1. Therefore, tourism supply chains partly include players from hospitality as well as travel. Nevertheless some players are included in tourism only.

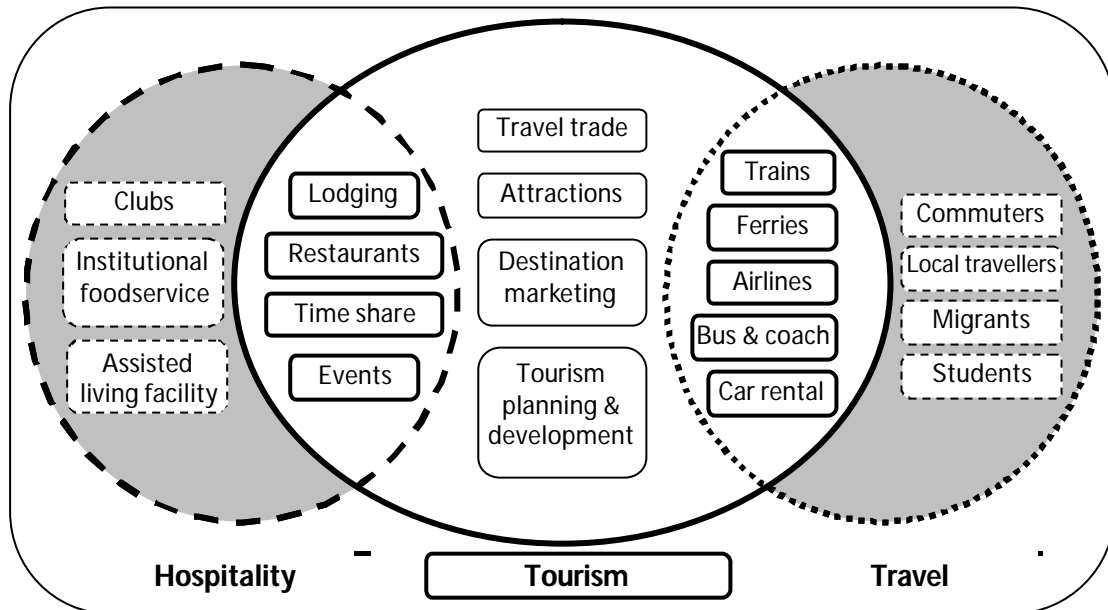


Figure 1: The relationship between the tourism, hospitality and travel industries.
 Source: Adapted from Pizam (2009).

2.2. Supply Chain Collaboration

There are several ways for collaboration in supply chains (Akintoye et al. 2000; Skjotoett-Larsen et al. 2003; Holweg et al. 2005; Holweg and Pil 2008). However, this study uses the four-stage classification offered by Spekman et al. (1998) illustrated in Figure 2. The relationship starts from Open market Negotiation though cooperation, then coordination and finally collaboration. This could be an outline of how to identify collaboration level in this research.

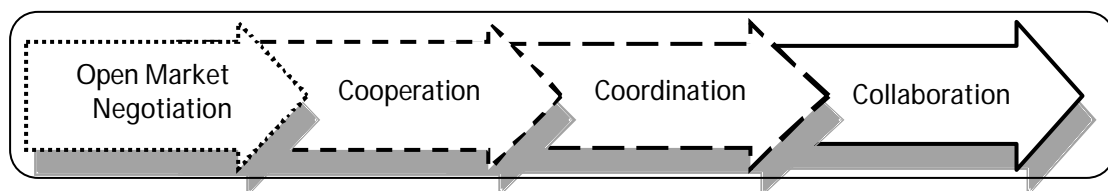


Figure 2: The key transition to Collaboration
 Source: Based on Spekman et al. (1998).

In tourism, Johnston and Clark (2008) propose a comprehensive overview of intermediaries in tourism (holiday) supply chain. This framework could be applied to the concept of collaboration in tourism supply chain. To some extents, collaboration in tourism supply chains is considered as relationships between service providers such as passenger transports and lodgings or caterings and their intermediaries namely tour agencies and tour operators.

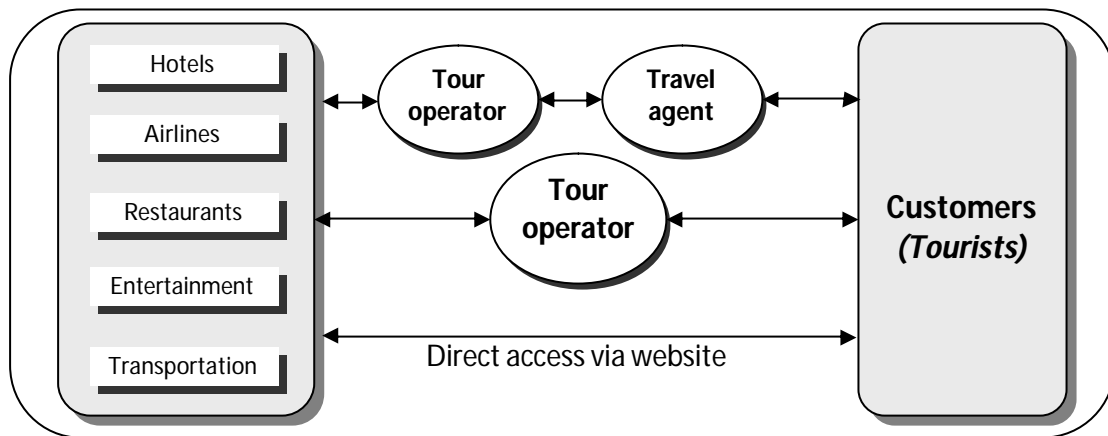


Figure 3: Intermediaries in the holiday supply chains

Source: Adapted from Johnston and Clark (2008, p. 161).

2.3. Transaction Cost Economics

Coase (1984) successfully proposed transaction cost economics (TCE) as a theory explaining the existence of the firm according to his Nobel Prize in Economics in 1991¹. Accordingly, this research applies the concept of TEC to explain the constitution of collaboration in the supply chains. A concept of transaction cost economics is then selected to be an underlying framework of the study due to several reasons. Firstly, TCE provide more holistic view of how firms interact to their partners. Moreover, there are several studies that have successfully applied TCE to their research areas. On the other hand, others alternative theory such as network theory do not provide a holistically framework in order to test the driver of collaboration like TCE.

¹ For more details please see Williamson (2005).

3. Research design

3.1. Research philosophy

This research is designed based on the positivist's paradigm. Positivists have ontology² in which the reality is observable and the objective world is exist (Näslund 2002). Moreover, epistemology³ in positivism is that researchers and what to be researched should be separated (Hussey and Hussey 1997; Gummesson 2000).

3.2. Research strategy

There are several choices for research method. Researcher may employ only single type of method or combine alternative method together. In order to apply multiple methods to study the same phenomenon, research may consider any for four choices in multiple methods (Figure 4). In this research, several research methods are combined for the purpose of facilitation and triangulation (Hammersley 1996). Whilst, quantitative method is the predominant method, qualitative methods are designed not only for facilitate reasons and but also for a purpose of triangulation.

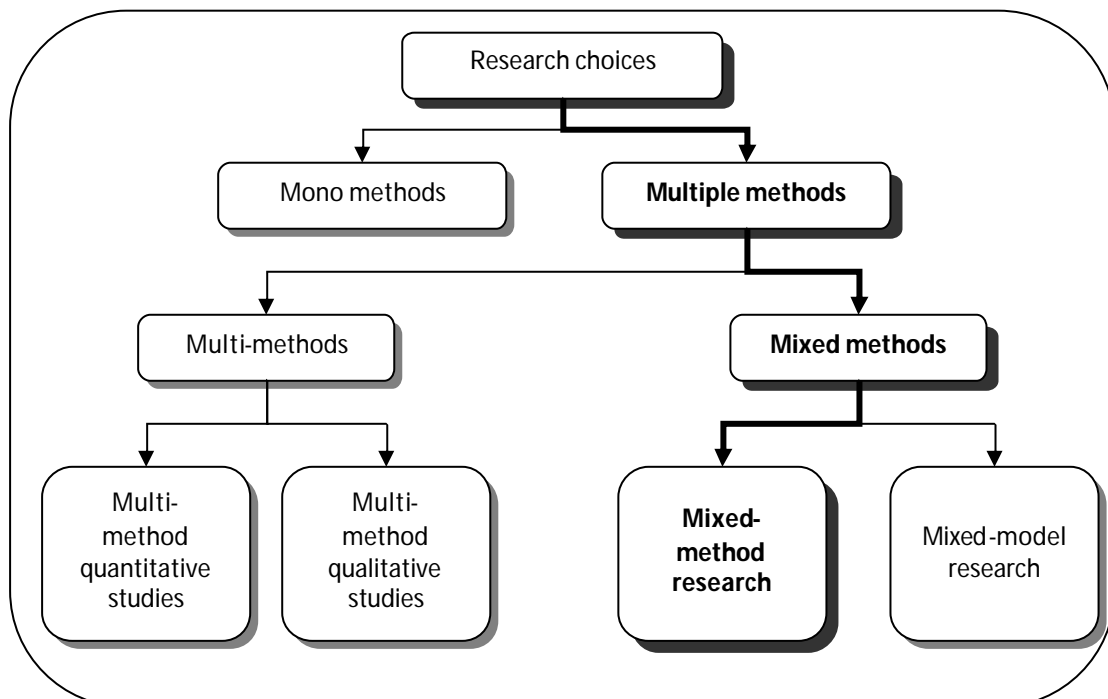


Figure 4: Choices of research methods

Source: Saunders et al. (2007).

² The opinion of what is the truth.

³ The interrelationship between researchers and what to be researched.

3.3. Mixed-method research

An advantage of implementing multiple-method research is to avoid weaknesses of a particular method (Näslund 2002; Mangan et al. 2004; Ramsey 2007; Boyer and Swink 2008; Carter et al. 2008). Even though the proper research method of this research is considered as survey based on its question form of ‘what’ (see Figure 5), there is a need for combining with other method for a couple of reasons, namely facilitation and triangulation (Bryman and Bell 2007). However, it should be noted that this research is based on only one paradigm that is positivism. Accordingly, an inclusion of qualitative into this study is to aid some processes and depth into the research.

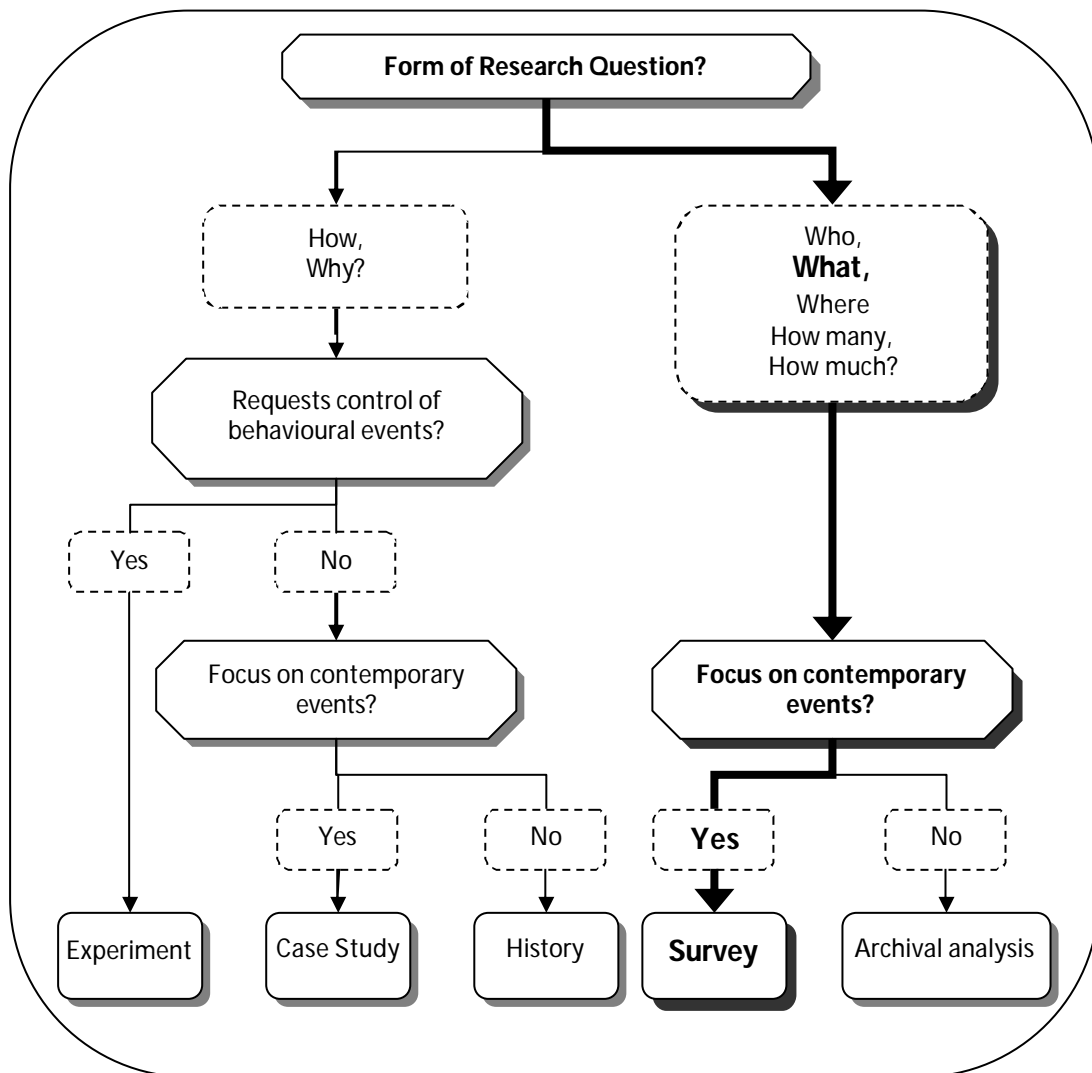


Figure 5: Choice of research methods

Source: Adapted from Yin (2003).

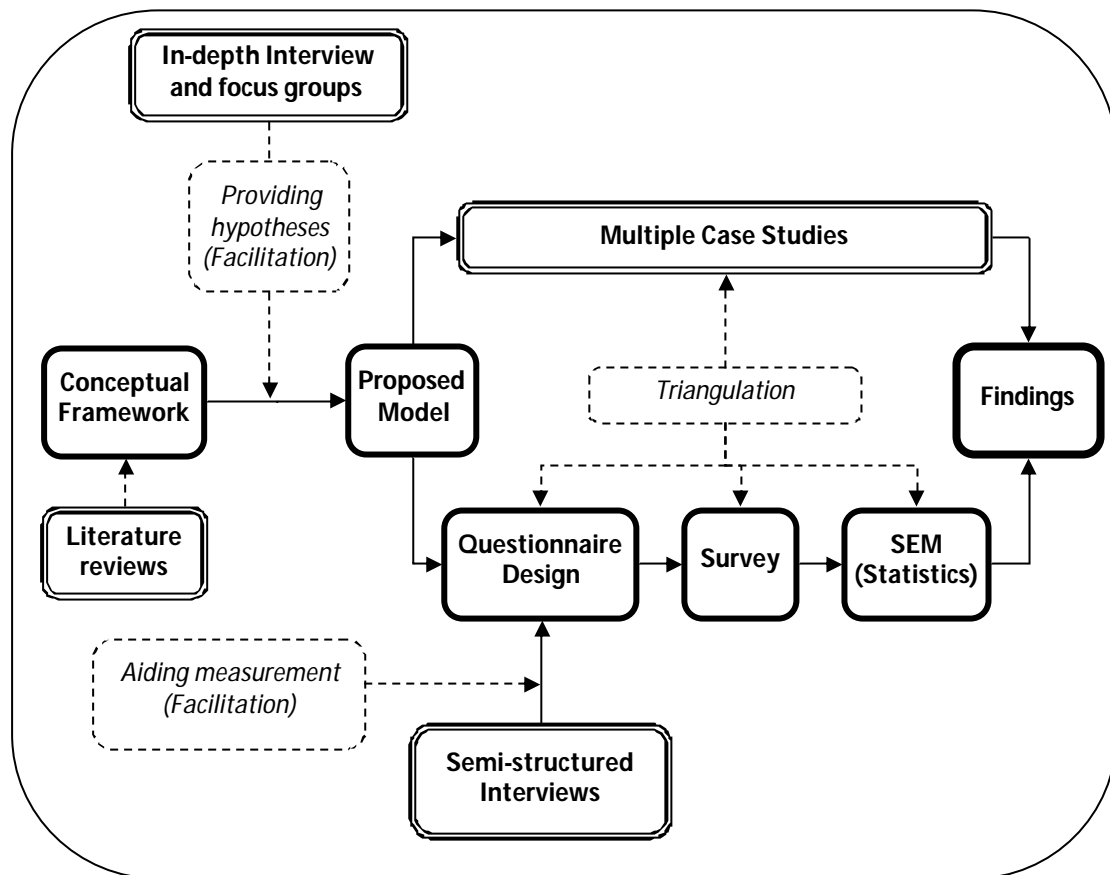


Figure 6: Research strategy: Mixed methods research

Source: The author.

A holistic view of a design for the use of multiple methods in the study is illustrated in the Figure 6. The process begins with building a conceptual framework based on literature review. Then in-depth interviews and focus group will be employed to verify the framework and derive the proposed model. This qualitative method is used to facilitate the conceptualisation process. Accordingly, two research methods are combined in order to cross check the findings. Survey-based research is considered as a predominant method in this study. Furthermore, multiple case studies will be implemented simultaneously. Multiple case studies which are typically used in collaboration with survey-based research this methodological combination will enable triangulations to the research (Voss et al. 2002). This study then employs the parallel mixed data analysis but still allow two independent methods consult each other in a semi-iterative manner (Teddie and Tashakkori 2009, p. 226).

Then, survey-based research method using quantitative analysis and multiple cases studies will be discussed in the following sections to gain a comprehensive understand of the research design.

4. Survey-based methods

4.1. Questionnaire design

In order to have a reliable data, questionnaire design is carefully designed and developed. This research employed the Nine-step procedure offered by Churchill and Iacobucci (2002, p.315). The procedure starts with (1) *information sought* that is driven by the definition of the constructs discussed in the proposed model. Then, (2) *type of questionnaire and method of an administration* is a structured questionnaire in order to ensure that all respondents will be subjected to the same content and order. Accordingly, content validity will be ensured by carefully (3) *checking of each individual question*.

Moreover, considering (4) *form of response*, in this study, a Likert (1932) type method of summated ratings, that respondents will be ask to give an opinion ranges from strongly agree to strongly disagree. This scale will suitable for the study that it provides an interval or ratio based. As this is the most powerful scale for statistical analysis (Hair et al. 2006). Another critical process is to avoid ambiguity of the questionnaire. Therefore, (5) *question wording* is designed in the simplistic way and free of jargon and terminology. Then, (6) *question sequence* will be carefully considered to ensure the logical flow. This process will help the respondents complete the questionnaire. A proper sequence can avoid the ambiguity of the respondent that may violate the validity of the data. Good (7) *physical characteristics* of the questionnaire not only encourage respondents to participate in the study but also enable the completion of the questionnaire by the respondent.

Furthermore, when the questions and contents of questionnaire is designed, it should be (8) *re-examined and revised*. Then, the revised questionnaire will be pre-tested by potential respondents in order to actually check any error in the questionnaire. This final process also provides an opportunity to foresee the potential problems.

4.2. Structural Equation Modelling

Among various analytical tools, structural equation modelling (SEM) is one of the frequently used analysis tools to prove the relationship between each variable and can also draw their constructs. SEM combines cluster analysis and path analysis together. The important output of SEM is the statistical proven theoretical model. It has an advantage to linear regression analysis in term that SEM allows more than one relationships in the model whereas linear regression can deal with only one relationship (Figure 7). Therefore, survey-based using SEM in my research could employ the process in Figure 8 suggested by Hair et al. (2010).

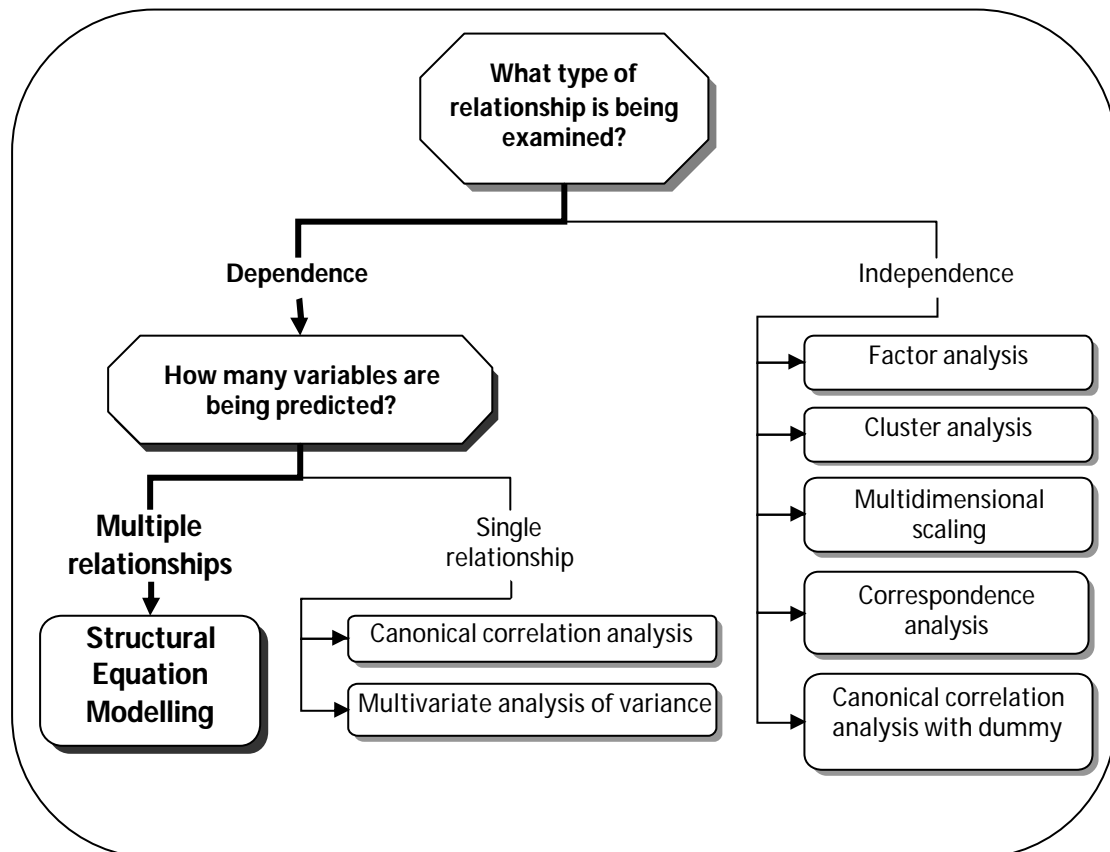


Figure 7: Selection Criteria for a Multivariate Technique

Source: Adapted from Hair et al. 2010.

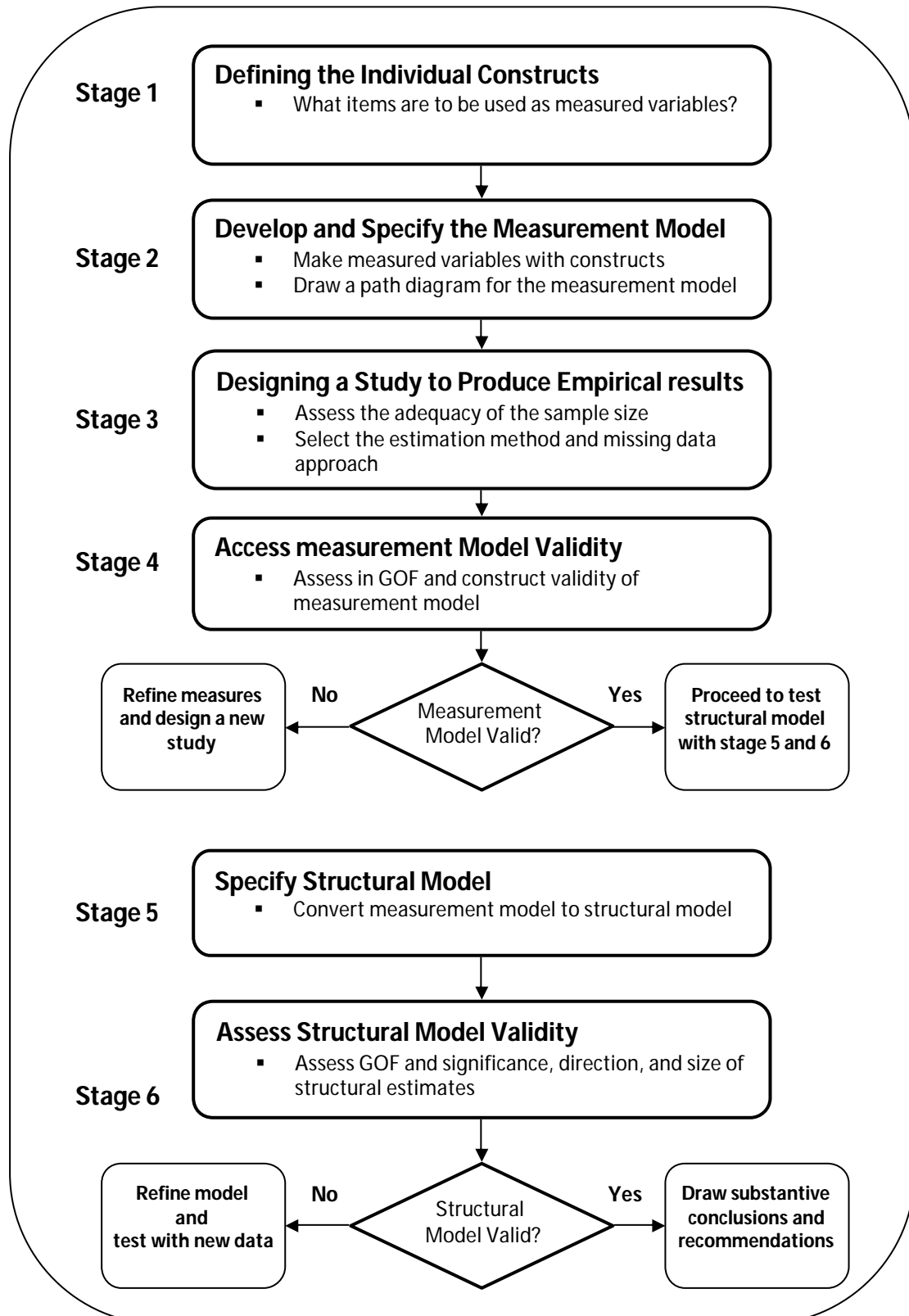


Figure 8: Six-Stage Process for Structural Equation Modelling
 Source: Hair et al. (2010).

In step One and Two, casual relationships are specified by the application of transaction cost economics. Then, these relationships are also verified by the semi-structured interviews with both academicians and practitioners. Accordingly, path diagram are constructed. Structural model is then illustrated (Figure 9). Full model can be obtained by combining structural model and measurement model such as *trust* or *transaction cost* (see Appendix B).

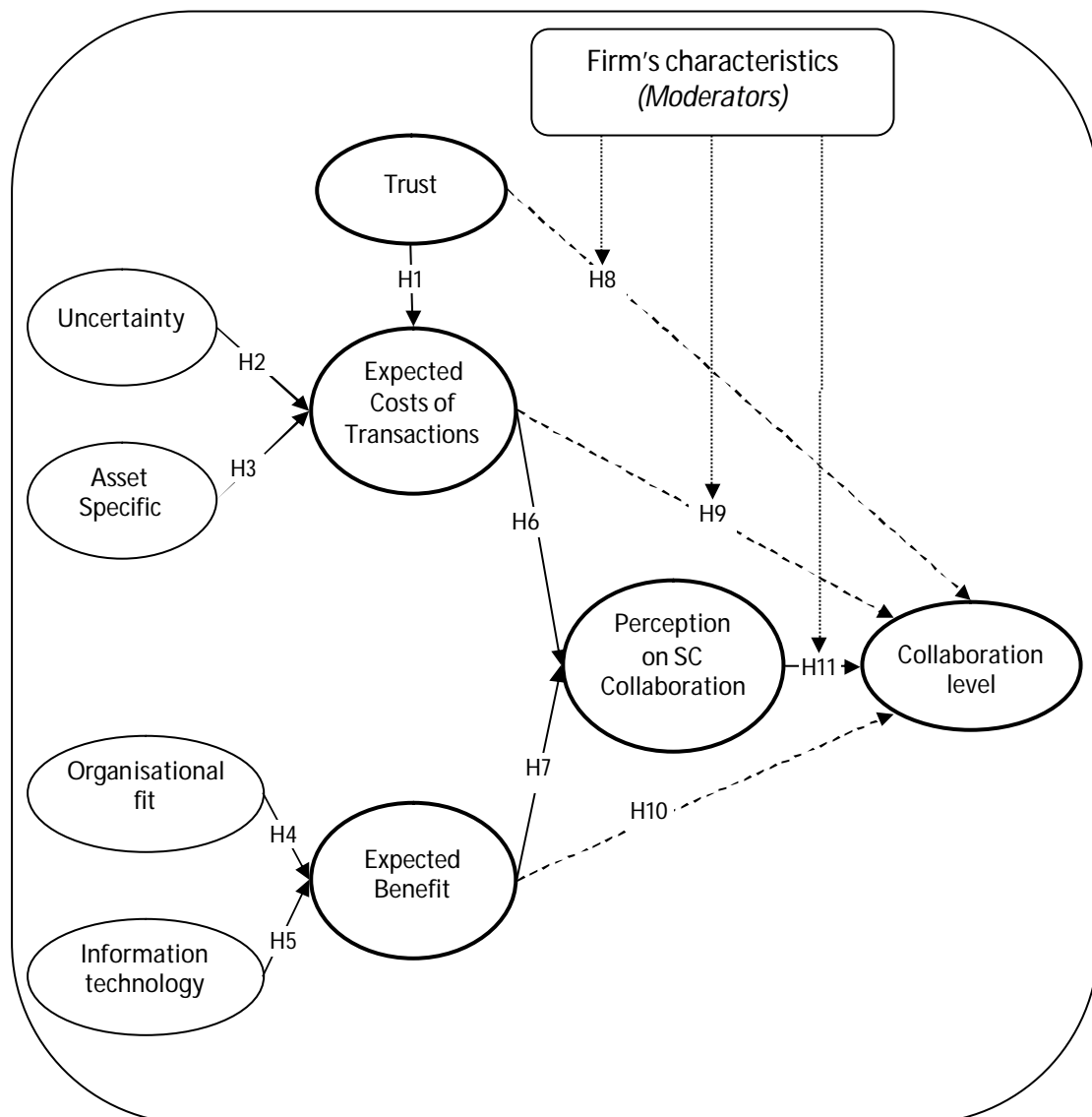


Figure 9: The structural model

Source: The author.

5. Multiple case studies

According to triangulation purpose, multiple case studies also provide finding that will cross-check with the result from statistics method. Figure 10 illustrates the multiple case study method implemented in this study. Typically, structured interview is considered as a prime source of data in case-study research (Voss et al. 2002). It should be supported by unstructured interview, interactions, participant observations, and archival data. A research protocol is designed in order to ensure the reliability and validity of the research. It is a critical tool for conducting a data collection process (Yin 2003). Therefore, case study protocol is eventually important as questionnaires in survey-based research.

Considering data analysis, two-step analysis is employed in this study namely within-cases and cross-cases analysis (Eisenhardt 1989). Firstly, pattern within a cases have to be analysed. Moreover, since the research objective is to test the hypothesis, expected causalities are captured by various qualitative techniques such as cause-and-effect analysis. Within-cases analysis is critical in term of sufficient information in order to be able to search for cross-case pattern.

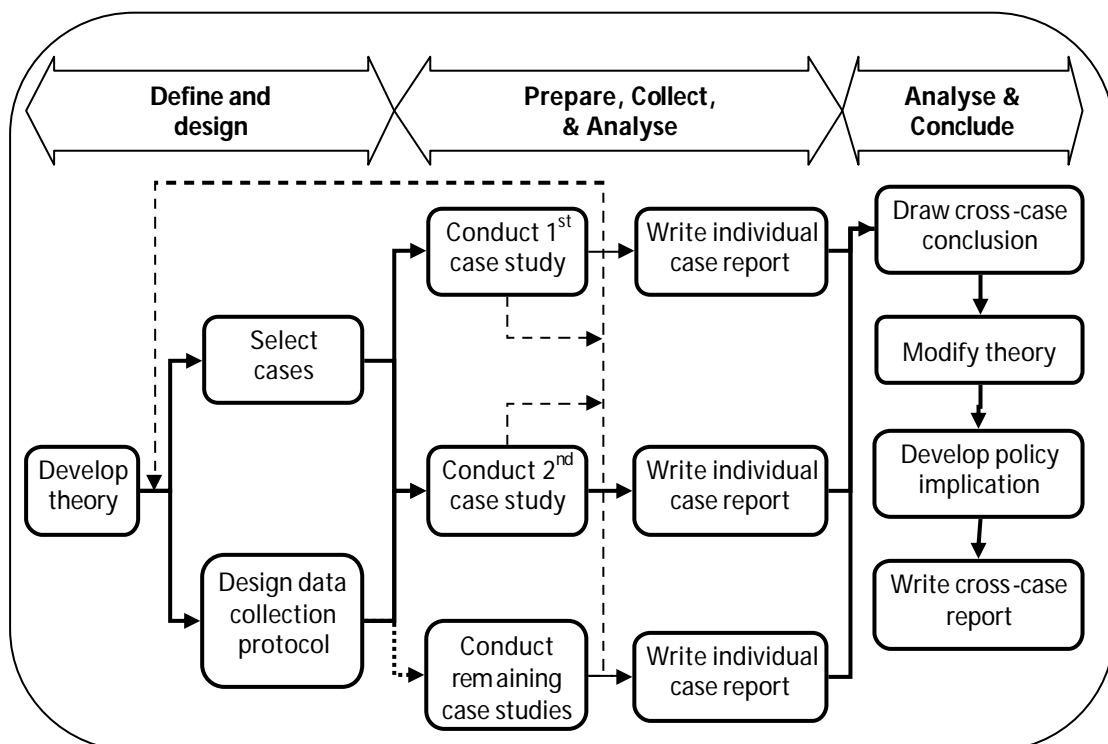


Figure 10: Multiple case method

Source: Adapted from Yin (2003).

6. Conclusions

This paper has illustrated a step-by-step approach for conducting mixed-methods research in supply chain collaboration. Figure 11 represents a holistic view of this research design. The bold texts are those of selected choices in the research. Accordingly, under positivism, the study employs mixed-methods analysis using cross sectional data. Whilst, quantitative procedure is the predominant method, semi-structured interview in the early stage is design to facilitate the hypothesis validation and also aid the measurement of the model. Moreover, multiple case studies are considered to collaborate with quantitative findings in order to achieve triangulation. This procedure is the integration of difference research methods to study the single phenomenon in order to avoid sharing the same weakness (Voss et al. 2002).

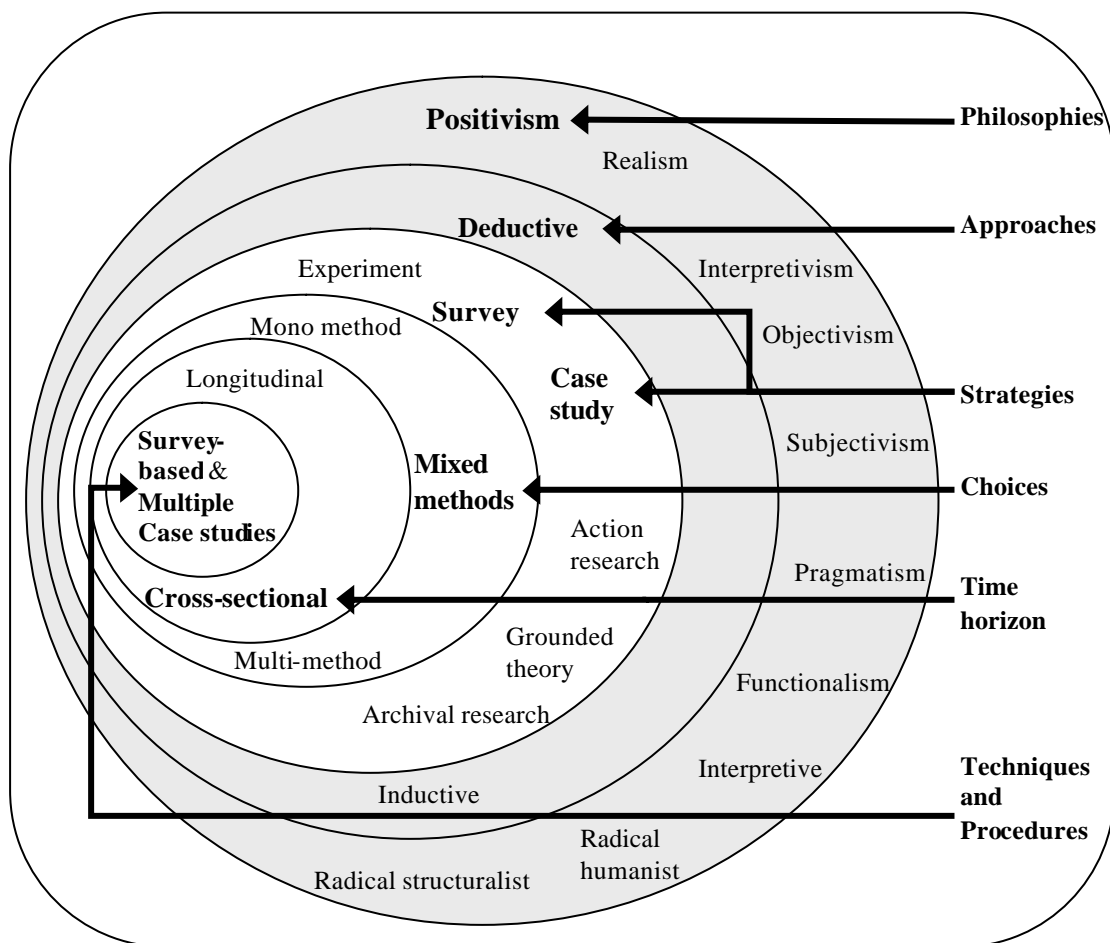


Figure 11: The research onion of this study
 Source: Adapted from Saunders et al. (2007, p.102)

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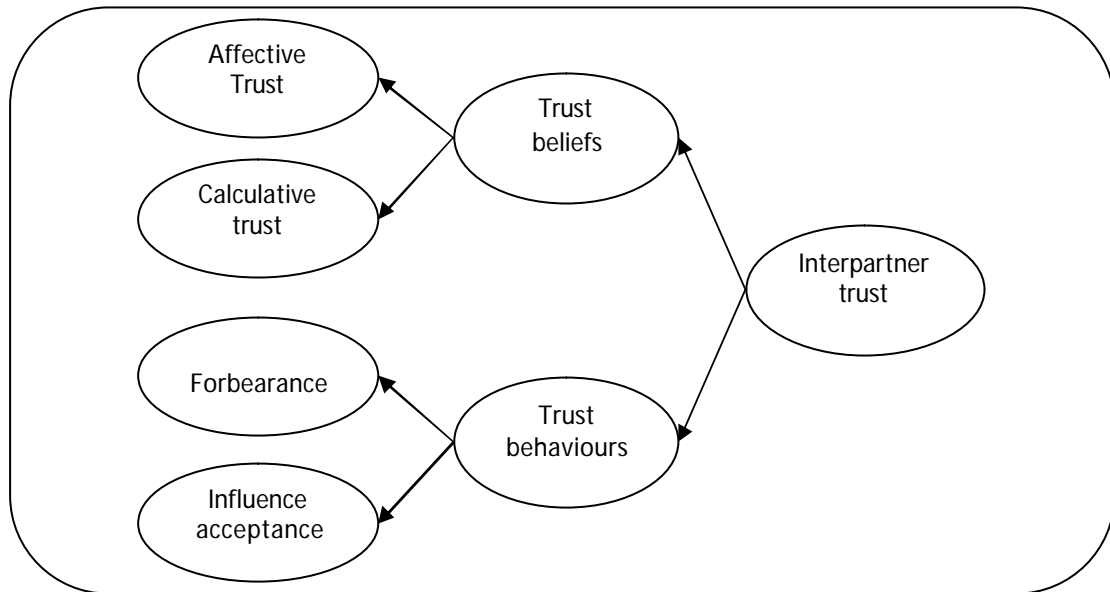
Appendix A**Appendix A: Summary of TSC literature**

Authors	Main focus	Paper type	Region
Zhang et al. (2009)	Overall TSCM	Conceptual	-
Lemmettyinen and Go (2009)	Tourism business network	Empirical	Europe (Finland)
Murphy and Smith (2009)	TSC relationship	Empirical	Europe (France)
Rusko et al. (2009)	SCM in tourism destination	Empirical	Europe (Finland)
Zhang and Murphy (2009)	SCM and marketing the tourist destination	Empirical	Asia (China)
Véronneau and Roy (2009)	TSCM practices	Empirical	America (Canada)
Page (2009)	Overall TSCM	Conceptual	-
Font et al. (2008)	Sustainable SCM	Empirical	UK & EU
Schwartz et al. (2008)	Sustainable SCM	Conceptual	-
Rodríguez-Díaz and Espino-Rodríguez (2008)	Tourist destination competitiveness and benchmarking	Empirical	Europe (Spain)
Silaga (2008)	SCM approach for sustainable tourism	Empirical	Europe (Greece)
Keating (2008)	Ethics in TSC	Empirical	Asia (China)
Municina and Popovici (2008)	Overall TSCM	Conceptual	-
Dye (2008)	SC Collaboration	Descriptive (Trade journal)	UK
Johnston and Clark (2008)	Holiday supply chains	Conceptual	-
Kaosa-ard and Suriya (2008)	Tourism Logistics	Conceptual	-
Smith and Xioa (2008)	Overall TSC (Culinary)	Empirical	America (Canada)
Xinyue and Yongli (2008)	TSC operations	Conceptual	-
Narayan et al. (2008)	Service quality measurement in TSC	Empirical	Asia (India)
Guo (2008)	Competition and relationship in TSC	Empirical	Asia (China)
Wei and Lu (2008)	TSCM and tourism development	Conceptual and Empirical	Asia
Schott (2007)	Distribution channels	Empirical	New Zealand
Mitchell and Faal (2007)	TSCM and tourism development	Empirical	Africa
Novelli et al. (2006)	Tourism network and cluster	Empirical	UK
Yilmaz and Bititci (2005)	Performance measurement	Conceptual	-
Alford (2005)	BPR	Conceptual	-
Tapper and Font (2004)	Overall TSC	Conceptual	-
Tapper and Carbone (2004)	Sustainable SCM	Handbook	-
Scarveda et al. (2001)	Process and operations management	Conceptual	-
Tapper (2001)	TSCM and tourism development	Empirical	UK
Hovara (2001)	Logistics of airline service onboard	Empirical	Europe
King (2001)	Logistics of airline service onboard	Empirical	UK
Lafferty and Fossen (2001)	Integration in tourism	Conceptual	-
Antunes (2000)	Overall TSCM	Conceptual	-
Go and William (1993)	Information technology	Conceptual	-

Source: Concluded from literatures obtained from EBSCO, Scopus and ScienceDirect.

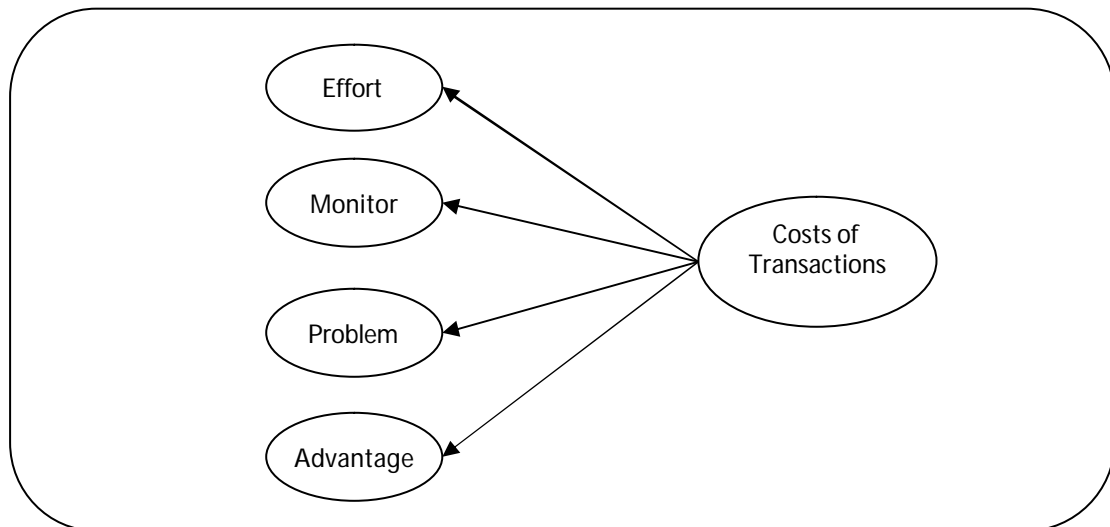
Appendices B: Measurement models

(1) Measurement model for Interpartner trust



Source: Robson et al. (2008).

(2) Measurement model for Costs of transactions



Source: Grover and Malhotra (2003).