A Three-Dimensional Integrated Trust Model for Trust Formation in B2C E-Commerce

Cong Cao
University of Wollongong

Follow this and additional works at: https://ro.uow.edu.au/theses1

Recommended Citation
A THREE-DIMENSIONAL INTEGRATED TRUST MODEL
FOR TRUST FORMATION IN B2C E-COMMERCE

Cong Cao

Principal Supervisor:
Associate Professor Jun Yan

Co-Supervisor:
Assistant Professor Mengxiang Li

This thesis is presented as part of the requirement for the conferral of the degree:
Doctor of Philosophy

The University of Wollongong
School of Computing and Information Technology

March 2018
ABSTRACT

The Internet has many unique advantages, including high interaction, convenience, transparency and individualisation, which make its online transaction mode increasingly popular among businesses and consumers. In recent years, the volume and amount of transactions in the business-to-consumer (B2C) electronic commerce (e-commerce) market show a trend of rapid development. However, with the broad application of the e-commerce mode, hidden problems have begun to gradually emerge, and trust issues, arising from the anonymity and virtuality of online transactions, have become a bottleneck that restricts further development of e-commerce. Therefore, enterprises and academics have focused on how to increase the online trust of consumers.

This research study investigates online trust as a breakthrough point aiming at consumers in the B2C e-commerce model; as such, it examines specific factors that influence consumers’ online trust. Based on a literature review and existing research results in relevant fields, with the Theory of Planned Behavior (TPB) as the theoretical underpinning, this study proposes a three-dimensional integrated trust model and identifies three factors that impact consumers’ trust: personal attitude, online reviews and trusted third parties (TTPs). The required experimental data were obtained using random sampling and online questionnaires. The Partial Least Squares Structural Equation Modelling (PLS-SEM) was used as the main analysis method to test the research hypotheses and to verify the validity of the online trust model. Moreover, the study investigated the mechanism and impact of different factors on consumers’ trusting behaviours.

This research is mainly grounded on the following points. First, it uses TPB to explore the mechanisms and factors that influence consumers’ trusting behaviours. Using an empirical research method, this study points out that consumers’ trust intention is influenced by personal attitudes, online reviews and TTPs. If a consumer’s personal attitude is positive, the online review he or she perceives will be positive, too. The more comprehensive
the services provided by TTPs are, the more intention a consumer has to trust, and vice versa. Moreover, the research results demonstrated that a consumer’s personal attitude negatively influences his or her perceived social pressure from an online review, and experts control over the TTP.

Second, this research study elaborates on the definition and connotation of online review quality, and it discusses the relevant factors that influence how consumers perceive the quality of online reviews. The research results demonstrated that how consumers perceive the quality of online reviews primarily depends on the accuracy, completeness, currency, format and credibility of the information.

Third, through the experimental method, this research study found that consumers use different channels to access online reviews. The data analysis results showed that reviews perceived by consumers from different channels have different degrees of influence on consumer trust. This research also found that reviews perceived in social networking services (SNSs) have the greatest influence on consumer trust, but the review information provided in a merchant’s own environment has a minimal influence.

Fourth, with the continuous development of SNSs, more and more enterprises are using social media to target consumers. Consumers also widely use SNSs as sources for publishing and disseminating online review information. This research study empirically expounded upon the mechanisms as well as the factors and framework that influence the helpfulness of online reviews perceived by consumers in an SNS environment.

Fifth, this research study expands the definition and function of TTP, and it proposes a TTP service framework containing different service types. An empirical research method was used to explore the specific influence of TTP service types on consumers’ trust behaviour. The results reveal that courier services, certification services and recommendation services perceived by consumers can significantly influence their trust intention, but insurance services have no obvious influence. This study’s findings also make clear that
different service types have a different influence on consumers’ behavioural decisions.

Sixth, this research study explores the important significance and role of TTPs in the trust building process, and its findings verify the trust transfer function of TTPs by experiments in a lab. The results further indicate that the reputation and the form of presentation of TTPs have an important influence on the trust transfer process, and they play a positive regulatory role transferrin that process. To be specific, the certification service provided by a TTP with an excellent reputation can significantly strengthen consumers’ trust in the enterprises. Meanwhile, a detailed, concrete description and demonstration of TTP services can effectively enhance consumers’ perceptions of TTP services, thus influencing their behavioural intention.
PUBLICATIONS FROM THE RESEARCH

Published Papers


**Accepted Papers**


ACKNOWLEDGEMENTS

Looking back on the hardships I experienced while pursuing my studies, I cannot help feeling great gratitude and complex emotions. At the completion time of this thesis, I would like to express my most sincere gratitude to all the people who helped, supported and cared for me in this period.

First, I gratefully acknowledge the help of my Principal Supervisor, Associate Professor Jun Yan. He has walked me through all the stages of the writing of this thesis, from topic selection and thesis composition to the final draft writing and the final revision of the manuscript. Every stage was accomplished under his consistent and patient instruction and was informed by the selfless dedication and efforts of my supervisor. I deeply appreciate that Associate Professor Jun Yan, taught me that scientific research is extensive and profound as well as exquisite and ingenious; his rigorous and realistic scientific attitude will benefit me throughout the year.

I would also like to express my heartfelt gratitude to my Co-supervisor Doctor Mengxiang Li. His advice, guidance and communications made it possible for me to master the basic methods and theories of scientific research and broadened my horizon, which greatly benefited me while conducting my research.

I am also greatly indebted to the academic staffs and colleagues at the School of Computing and Information Technology who helped me as I was conducting the research study.

Last, but not least, I am grateful to my family. Many thanks to Tao Zhang, who has been painstakingly caring for, supporting and encouraging me for years throughout each step in the process of pursuing my studies. I am particularly grateful to my parents whose long-term care and kindness have supported me in achieving my goals, enabling me to get to where I am today.
The page is too short to describe all of my feelings. While I cannot list all the names of the people who helped me, I will always remember the many ways in which you helped me succeed.

Furthermore, I would like to express my most sincere gratitude to the professional editors at Scribendi, Inc. who provided copyediting and proofreading services, according to the guidelines laid out in the university-endorsed national “Guidelines for editing research theses”. They revised my thesis to strengthen its clarity, word choice, and its use of idioms, as well as to correct for grammar and spelling errors. Their assistance enabled me to communicate my ideas more clearly.

Finally, the research described in this thesis was supported by a grant from the State Scholarship Fund of the China Scholarship Council (File No. 201308200014) and a grant from the International Postgraduate Tuition Award from the University of Wollongong. All their support is gratefully acknowledged.
DEDICATION

I would like to dedicate my work to the people I most cherish:

my father, Chonggang Huang,

and

my mother, Meimei Cheng

and

my spouse, Tao Zhang.
TABLE OF CONTENTS

CERTIFICATION.............................................................................................................. I

ABSTRACT .................................................................................................................... II

PUBLICATIONS FROM THE RESEARCH........................................................................ V

ACKNOWLEDGEMENTS............................................................................................... VII

DEDICATION.................................................................................................................... IX

TABLE OF CONTENTS.................................................................................................. X

LIST OF TABLES............................................................................................................. XX

LIST OF FIGURES.......................................................................................................... XXII

LIST OF EQUATIONS..................................................................................................... XXIV

LIST OF ABBREVIATIONS............................................................................................ XXV

Chapter 1  Introduction.................................................................................................. 1

1.1  Background ............................................................................................................. 1

1.2  Research Objectives ............................................................................................... 4

1.3  Research Content .................................................................................................... 7

1.4  Research Scope ....................................................................................................... 9

1.5  Theoretical Significance ......................................................................................... 9

1.6  Practical Significance ............................................................................................. 10

1.7  Research Contribution .......................................................................................... 11

1.8  Research Significance .......................................................................................... 13
Chapter 2  Literature Review........................................................................................................22

2.1  Background ..............................................................................................................................22

2.2  Concept and Attributes of Trust ............................................................................................22
     2.2.1  Definition of Trust ............................................................................................................22
     2.2.2  Characteristics of Trust ...................................................................................................24

2.3  Common Terms Related to Trust ............................................................................................24

2.4  Trust in e-Commerce ..............................................................................................................26

2.5  Differences between Online Trust and Traditional Trust ..................................................28

2.6  The Significance of Trust in B2C e-Commerce ....................................................................29
     2.6.1  Trust Can Decrease the Transaction Cost .......................................................................29
     2.6.2  Trust Can Reduce the Transaction Risk ..........................................................................29
     2.6.3  Trust Can Improve the Further Cooperation of Each Transaction Party ......................30

2.7  Levels and Classification of Trust ..........................................................................................30

2.8  The Consumer’s Trust Perception ..........................................................................................31

2.9  Influence of Other People’s Comments ..................................................................................32

2.10 Perception Risk Control of Consumers by External Resources ............................................36

2.11 Factors Influencing Consumers’ Online Trust ......................................................................38
     2.11.1  Influencing Factors Related to the e-Commerce Enterprise .........................................39
             2.11.1.1  Enterprise Scale ....................................................................................................39
             2.11.1.2  Corporate Recognition ..........................................................................................40
             2.11.1.3  Personalised Products and Services ......................................................................40
2.11.2 The Influencing Factors Related to the Enterprise Website ..................................... 41
   2.11.2.1 Website Design ................................................................................................. 42
   2.11.2.2 Service Quality of the Website ........................................................................ 43
   2.11.2.3 Information Quality of the Website .................................................................. 43
   2.11.2.4 Website Security and Privacy Control ............................................................. 44
2.11.3 Influencing Factors Related to Consumers’ Individual Characteristics .......... 44
   2.11.3.1 The Online Transaction Experience .............................................................. 45
   2.11.3.2 Propensity to Trust .......................................................................................... 45
2.11.4 External Influencing Factors Related to the B2C e-Commerce Environment 46
   2.11.4.1 Technological Environment ......................................................................... 46
   2.11.4.2 National Policy and Legal Environment ........................................................ 46

2.12 Summarizing Prior Empirical Research on the Consumer’s Online Trust .... 47

2.13 Critical Thinking ....................................................................................................... 56
   2.13.1 Successfully Separating Online Consumer Trust from Research on Consumer Trust in Traditional Transactions ................................................................. 56
   2.13.2 Exploration of the Evolution Process and Formation Mechanism of Online Consumer Trust .................................................................................................................. 57
   2.13.3 Further Detail and Improvement of Influencing Variables and Measures of Online Consumer Trust ....................................................................................................... 57
   2.13.4 The Influential Factors that Form the Trust of Online Consumers Are Still Incomplete ...................................................................................................................... 58
   2.13.5 The Mechanism of Action Included in Various Factors Influencing the Trust of Online Consumers Needs to Be Explored ............................................................ 58

Chapter 3 Research Methodology ...................................................................................... 60

3.1 Theoretical Foundation ............................................................................................... 60
   3.1.1 Theory of Planned Behavior ................................................................................ 61
Chapter 5  The Influence Factors of Online Review Quality .........................104

5.1  Introduction ....................................................................................104

5.2  Theoretical Background and Hypotheses ............................................106

5.3  Research Methodology ......................................................................110

5.4  Results .............................................................................................110

5.4.1  Demographic Characteristics .......................................................110

5.4.2  Measurement Model .....................................................................111

5.4.3  Structural Model ..........................................................................113

5.5  Discussion and Implications ...............................................................114

5.5.1  Summary of the Results ...............................................................114

5.5.2  Implications of Theory .................................................................116

5.5.3  Practical Implications .................................................................116

5.6  Limitations and Future Research ......................................................117

5.7  Conclusion .........................................................................................118

Chapter 6  The Impact of Different Channels of Online Review .................120

6.1  Introduction ....................................................................................120

6.2  Theoretical Background and Hypothesis ...........................................122

6.3  Research Methodology ....................................................................128

6.3.1  Research Model .........................................................................128

6.3.2  Experiment Design .................................................................128
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3.3</td>
<td>Data Analysis</td>
<td>130</td>
</tr>
<tr>
<td>6.4</td>
<td>Results</td>
<td>131</td>
</tr>
<tr>
<td>6.4.1</td>
<td>Measurement Model</td>
<td>131</td>
</tr>
<tr>
<td>6.4.2</td>
<td>Multi-group Analysis</td>
<td>133</td>
</tr>
<tr>
<td>6.5</td>
<td>Discussion and Implications</td>
<td>135</td>
</tr>
<tr>
<td>6.5.1</td>
<td>Discussion</td>
<td>135</td>
</tr>
<tr>
<td>6.5.2</td>
<td>Theoretical Contribution</td>
<td>137</td>
</tr>
<tr>
<td>6.5.3</td>
<td>Practical Implications</td>
<td>138</td>
</tr>
<tr>
<td>6.6</td>
<td>Limitations and Research Directions</td>
<td>138</td>
</tr>
<tr>
<td>6.7</td>
<td>Conclusion</td>
<td>139</td>
</tr>
<tr>
<td>7.1</td>
<td>Introduction</td>
<td>141</td>
</tr>
<tr>
<td>7.2</td>
<td>Literature Review</td>
<td>144</td>
</tr>
<tr>
<td>7.3</td>
<td>Theoretical Foundation and Hypotheses Development</td>
<td>146</td>
</tr>
<tr>
<td>7.3.1</td>
<td>Theoretical Foundation</td>
<td>146</td>
</tr>
<tr>
<td>7.3.2</td>
<td>Research Framework and Hypotheses</td>
<td>147</td>
</tr>
<tr>
<td>7.4</td>
<td>Research Methodology</td>
<td>150</td>
</tr>
<tr>
<td>7.4.1</td>
<td>Measurement Development</td>
<td>150</td>
</tr>
<tr>
<td>7.4.2</td>
<td>Sampling and Data Collection</td>
<td>150</td>
</tr>
<tr>
<td>7.4.3</td>
<td>Data Analysis</td>
<td>151</td>
</tr>
<tr>
<td>7.5</td>
<td>Results</td>
<td>152</td>
</tr>
<tr>
<td>7.5.1</td>
<td>Model Assessment</td>
<td>152</td>
</tr>
<tr>
<td>7.5.2</td>
<td>Measurement Model</td>
<td>153</td>
</tr>
<tr>
<td>7.5.3</td>
<td>Structural Model</td>
<td>155</td>
</tr>
<tr>
<td>7.6</td>
<td>Discussion and Implications</td>
<td>156</td>
</tr>
</tbody>
</table>
8.7 Conclusion..............................................................................................................185

Chapter 9  The Trust Transfer Mechanism of A Trusted Third Party..............187

9.1 Introduction ..............................................................................................................187
9.2 Literature Review .....................................................................................................189
9.3 Theoretical Background and Hypotheses.................................................................191
9.4 Research Methodology .............................................................................................195
  9.4.1 Experiment Design.................................................................................................195
  9.4.2 Participants ............................................................................................................196
  9.4.3 Procedures .............................................................................................................196
  9.4.4 Data Analysis .........................................................................................................197
9.5 Results .......................................................................................................................197
  9.5.1 Measurement Model..............................................................................................197
  9.5.2 Structural Model ...................................................................................................199
  9.5.3 Multi-group Analysis ............................................................................................200
9.6 Discussion and Implications .....................................................................................201
  9.6.1 Summary of Results ............................................................................................201
  9.6.2 Theoretical and Industrial Significance .................................................................203
  9.6.3 Limitations and Future Research .........................................................................204
9.7 Conclusion ................................................................................................................205

Chapter 10  Discussions and Conclusions .................................................................206

10.1 Summary of Results ...............................................................................................206
10.2 Implications ............................................................................................................209
  10.2.1 Implications for Theory ......................................................................................209
  10.2.2 Innovations .........................................................................................................210
  10.2.3 Implications for Practice ....................................................................................211
10.2.3.1 Suggestions for Enterprises ................................................................. 211
10.2.3.2 Suggestions for Industry ................................................................. 213
10.2.3.3 Suggestions for Government .......................................................... 213

10.3 Limitations ............................................................................................ 214
10.4 Future Study .......................................................................................... 216

REFERENCES .................................................................................................. 218

Appendix A - Request Letter for Online Survey ........................................ 235
Appendix B - Online Survey Participant Information Sheet ...................... 237
Appendix C - Request Letter for Interview .................................................. 239
Appendix D - Interview Participant Information Sheet .............................. 241
Appendix E - Interview Consent Form for Participants .............................. 243
Appendix F - Discriminant Validity of Constructs ....................................... 245
Appendix G - Factor Loadings and Cross Loadings .................................... 247
Appendix H - Descriptive Statistics for Chapter Six .................................... 251
Appendix I - Descriptive Statistics for Chapter Nine ................................... 253
Appendix J - Online Qualtrics Survey Software Questionnaire Sample ........ 254
Appendix K - Questionnaire in Experiment .................................................. 274
Appendix L - Experiment .............................................................................. 277
Appendix M - Experiment Webpage for Chapter Six .................................... 279
Appendix N - Experiment Webpage for Chapter Nine .............................. 280
LIST OF TABLES

Table 2.1 Empirical Studies on the Determinants of Online Trust.........................47
Table 3.1 Rules for Choosing PLS-SEM and CB-SEM (Joseph F. Hair et al., 2017) .................................................................75
Table 3.2 Evaluation of the PLS-SEM Results (Joseph F. Hair et al., 2017)..........76
Table 4.1 Demographic Characteristics of Respondents........................................94
Table 4.2 Reliability Statistics .............................................................................96
Table 4.3 Results of Hypothesis Testing ...............................................................98
Table 5.1 Demographic Profile of Respondents (N=259).................................111
Table 5.2 Descriptive Statistics for the Constructs................................................111
Table 5.3 Factor Loadings and Cross-loadings......................................................112
Table 5.4 Discriminant Validity of Constructs......................................................112
Table 6.1 The Demographic Profile of Respondents (N=100)............................130
Table 6.2 The Descriptive Statistics for the Constructs..........................................131
Table 6.3 The Correlation between the Dimensions.............................................132
Table 6.4 The Factor Loadings and Cross-loadings..............................................133
Table 6.5 The Parametric Significance Test..........................................................135
Table 6.6 The Results of the Research Hypotheses..............................................135
Table 7.1 Demographic Profile of Respondents (N=221).................................151
Table 7.2 Measurement Statistics of Construct Scales.........................................152
Table 7.3 Descriptive Statistics for the Constructs...............................................153
Table 7.4 Factor Loadings and Cross-loadings......................................................154
Table 7.5 Correlations among Constructs and the Square Root of the AVE ....154
Table 7.6 Significance Test.................................................................................155
Table 8.1 Interaction between Consumers and Online Retailers.....................167
Table 8.2 Demographic Profile of Respondents (N=282).................................175
Table 8.3 Descriptive Statistics for the Constructs..............................................176
Table 8.4 Discriminant Validity of Constructs.................................................................177
Table 8.5 Factor Loadings and Cross-loadings.............................................................178
Table 9.1 The Demographic Profile of Respondents (N=100)....................................196
Table 9.2 The Descriptive Statistics for the Constructs.................................................197
Table 9.3 The Factor Loadings and Cross-loadings......................................................198
Table 9.4 The Correlation between the Dimensions....................................................199
Table 9.5 The Parametric Significance Test – High vs. Low Reputation...............200
Table 9.6 The Parametric Significance Test – Abstract vs. Concrete Presentation
........................................................................................................................................201
LIST OF FIGURES

Figure 1.1 Technical Roadmap.................................................................16
Figure 1.2 Technical Roadmap in the Empirical Research Stage..............16
Figure 1.3 Structure of Thesis...............................................................21
Figure 2.1 Trust Relationship between Consumer and Enterprise ..........38
Figure 2.2 Components of Personal Attitude........................................39
Figure 3.1 The Theory of Planned Behavior (Ajzen, 1991)......................62
Figure 3.2 Technology Acceptance Model (Davis, 1989)........................64
Figure 3.3 The Research Process ..........................................................68
Figure 3.4 Procedure for applying PLS-SEM........................................76
Figure 4.1 Three-Dimensional Integrated Trust Model..........................85
Figure 4.2 PLS-SEM Analysis Results .................................................98
Figure 5.1 Theoretical Research Framework.........................................108
Figure 5.2 The Path Coefficient of the Research Model.........................113
Figure 6.1 Online Review Channels .....................................................123
Figure 6.2 Reviews in the Online Apple Store ....................................124
Figure 6.3 The Online Review and Rating System on eBay..................126
Figure 6.4 An Online Review on Facebook..........................................127
Figure 6.5 The Research Model ............................................................129
Figure 6.6 The Path Coefficient of Three Channels of the Research Model 134
Figure 7.1 Research Framework ..........................................................147
Figure 7.3 PLS-SEM Analysis Results .................................................156
Figure 8.1 Transmission of Credit Information ....................................170
Figure 8.2 Research Framework of TTP Services.................................172
Figure 8.3 PLS-SEM analysis results..................................................179
Figure 9.1 Trust Transfer of TTP ............................................................192
Figure 9.2 Research Framework ............................................................193
Figure 9.3 PLS-SEM Analysis Results ................................................................. 200
Figure 9.4 Trust Transfer Mechanism of TTP in the Online Environment .......... 203
LIST OF EQUATIONS

Equation 6.1 The Parametric Approach to PLS-MGA (Sarstedt et al., 2011)......134
# LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>ACCC</td>
<td>Australian Competition and Consumer Commission</td>
</tr>
<tr>
<td>ACORN</td>
<td>Australian Cybercrime Online Reporting Network</td>
</tr>
<tr>
<td>AVE</td>
<td>Average Variance Extracted</td>
</tr>
<tr>
<td>CA</td>
<td>Cronbach's $\alpha$</td>
</tr>
<tr>
<td>CB-SEM</td>
<td>Covariance-Based Structural Equation Modelling</td>
</tr>
<tr>
<td>CR</td>
<td>Composite Reliability</td>
</tr>
<tr>
<td>E-Commerce</td>
<td>Electronic Commerce</td>
</tr>
<tr>
<td>PLS-SEM</td>
<td>Partial Least Squares Structural Equation Modelling</td>
</tr>
<tr>
<td>PLS-MGA</td>
<td>Partial Least Squares Multi-Group Analysis</td>
</tr>
<tr>
<td>SEM</td>
<td>Structural Equation Modeling</td>
</tr>
<tr>
<td>SIT</td>
<td>Social Influence Theory</td>
</tr>
<tr>
<td>SNS</td>
<td>Social Networking Service</td>
</tr>
<tr>
<td>TAM</td>
<td>Technology Acceptance Model</td>
</tr>
<tr>
<td>TPB</td>
<td>Theory of Planned Behavior</td>
</tr>
<tr>
<td>TRA</td>
<td>Theory of Reasoned Action</td>
</tr>
<tr>
<td>TTP</td>
<td>Trusted Third Party</td>
</tr>
</tbody>
</table>
CHAPTER 1
INTRODUCTION

1.1 Background

In recent years, there has been a substantial increase in internet penetration and people’s digital presence. As the internet is becoming increasingly accessible, the online-driven lifestyle is having a far-reaching effect on mass consumer buying behaviour, resulting in a digital consumption surge. In 2015, the electronic commerce (e-commerce) market accumulated a staggering $1.672 trillion, accounting for 7.3% of the total global retail sales of $22.822 trillion (Chung, 2015). With people increasingly using the internet, eMarketer Inc. predicts that the e-commerce market will double by 2019 with online purchases of $3.551 trillion, which will make up 12.4% of a total of $28.550 trillion in global retail sales (Lindner, 2015). Taking Australia as an example, Australian consumers can easily engage in online or offline trades by various means due to the highly efficient logistics infrastructure, high internet penetration and widespread use of smartphones in this country (Chaffey, 2015). Higher numbers of Australian consumers opt for online shopping because of the convenience provided by e-commerce and wider ranges of products available to be chosen (Madden & Ahmad, 2015). In the 12 months up to September 2017, Australian consumers spent about $23.4 billion, equalling 7.6% of traditional retail sales. Compared with the previous year, online sales increased by 6% (National Australia Bank Limited, 2017). National Australia Bank Limited (2018) predicted that the e-commerce sales in Australia would grow to $24.7 billion in 2018 and its proportion in total retail sales would further increase to 7.9%.

As the fundamental problems restricting e-commerce development, such as payment and distribution, have been gradually solved, the trust between transaction counterparts has emerged as a bottleneck against further e-commerce growth (C. Cao, Yan, & Li, 2017; Y. Fang et al., 2014). In whatever cultural background and market environment and to
whatever stage e-commerce develops, building, maintaining and enhancing e-commerce trust is always a primary issue for e-commerce’s development (Kong & Hung, 2006). The Australian Competition and Consumer Commission (ACCC) received around 105,000 scam complaints in 2015, which is 14,000 more than that in 2014. The reported lost money increased by 4% and totalled $82 million (Australian Competition and Consumer Commission, 2015). In the same period, the Australian Cybercrime Online Reporting Network (ACORN) revealed reported losses of over $127 million due to e-commerce scams and lack of trust on the virtual market (Kainth, 2016). Meanwhile, researchers also study influencing factors of success in e-commerce, and their results indicate that the primary factor hampering the success and further growth of e-commerce is lack of trust (Gefen, 2000; Salam, Lyer, Palvia, & Singh, 2005). Recent studies have also arrived at similar conclusions (Y. Fang et al., 2014; Dan J Kim, Ferrin, & Rao, 2009). A key problem to be solved in the rapid development, maturing and perfection of e-commerce is how to build, maintain and enhance mutual trust between transaction counterparts in e-commerce to reduce the risks and cost of e-commerce trade and ensure successful transactions (Y. Kim & Peterson, 2017).

Trust is an indispensable concept in transaction relations, but the distinctness of online transactions aggravates the risk perception by related parties, and thus, the role of trust becomes increasingly prominent (Harridge-March, 2006). Traditional business can control transaction risks through a series of formal and informal mechanisms, such as face-to-face communication, signing of written contracts, reliance on laws, and taking lawsuit or arbitration actions, with the aim of guiding and promoting the building of the trust relationship and ensuring a smooth transaction process (Harridge-March, 2006; Kiernan, Guglielmi, Kaji, Murray, & Bostock, 2002). The risk control of online transactions by these traditional methods to advance the further development of e-commerce is characterised by high cost and low efficiency. The trust-building mechanism of e-commerce is helpful for one party in the transaction to confirm that the other party will not do harm to the first by virtue of its information advantage, thereby effectively facilitating the smooth transaction process (Clemons et al., 2016). As a result, analysis of major factors that shape
trust in the e-commerce environment and study of the online trust-building mechanism become an important task in the development process of e-commerce.

Due to the practical need for e-commerce growth, both researchers and practitioners show strong interest in e-commerce trust. Researchers have conducted many studies on the role and effects of trust, as well as its constitutive factors, which have indicated that the role of trust is reflected in enhancing perception of the possibility of an expected behaviour, increasing the predictability of the behavioural outcome, decreasing transaction costs, lessening opportunistic behaviours and reducing uncertainties in partners, thereby making the transaction relations more foreseeable and meeting needs (Fam, Foscht, & Collins, 2004; Y. Fang et al., 2014; Kiernan et al., 2002; Pavlou, 2003; Pavlou & Gefen, 2004).

As revealed by these research results, if a company can prove to consumers that online shopping is trustworthy and substitute the related cost while decreasing uncertainties, this is conducive to the development of online transactions. Reichheld and Schefter (2000) point out that “price does not rule the web; trust does”. In the industry, many trusted third parties (TTPs) appear to have solved the issue of consumer trust in online transactions. They provide support for the success of online transactions via different technical means and offering intermediary services. For example, VeriSign secures consumers’ online transactions, while TRUSTe provides a privacy seal to demonstrate companies’ compliance with their commitment to privacy protection, thereby effectively easing users’ concerns about privacy.

In the last decade, many in-depth studies have been conducted on the initial trust-building mechanism and constitutive factors of online consumers’ trust. However, due to the polysemy of the concept of trust, different understandings have resulted in different research frameworks. Meanwhile, there are too many factors influencing trust, and these involve different subjects, such as consumers, merchants, webpages, technologies, institutions and cultures; one study often focusses on only one of these subjects (Awad & Ragowsky, 2008; Fam et al., 2004; Y. Fang et al., 2014; Kiernan et al., 2002; McKnight, Cummings, & Chervany, 1998). Consequently, a single trust model can only explain one type of
influencing factors rather than the influence and effects among different types of factors.

In this thesis, a comprehensive investigation is conducted on multiple factors leading to trust, and a multidimensional integrated trust model is proposed based on relevant theories, aiming at exploring specific factors influencing the consumers’ trust in online shopping in the current e-commerce environment and their influence mechanism. Furthermore, we attempt to answer the two following questions:

*Which factors constitute online consumers’ trust?*

*How do these factors currently influence online consumers’ shopping behaviours?*

### 1.2 Research Objectives

This research examines the factors influencing consumer trust in the environment of e-commerce and the mechanism behind them. The study has the following objectives:

1. *To build an integrated model that includes multiple factors influencing trust for analysing consumers’ online trust behaviour;*

2. *To identify and analyse factors influencing online review quality perceived by consumers;*

3. *To compare the influence of online reviews from different information channels on consumer behaviour;*

4. *To explain how consumers judge the helpfulness of online review information when they are using a social networking service (SNS).*

5. *To elaborate on the service framework provided by TTPs and the influence of different services on consumer trusting behaviour; and*

6. *To investigate the trust transfer function of TTPs in an online shopping environment.*

Existing research results indicate that researchers make detailed and in-depth analyses of
influencing factors of trust. However, there is a general problem in that they focus only on the influence of one type of factor on consumer trust. Example factors include the influence of webpage design on consumer trust (Ganguly, Dash, Cyr, & Head, 2010) and the influence of online reviews on the degree of enterprise trustworthiness perceived by consumers (Sparks & Browning, 2011). Although they demonstrate the influence of various factors on consumer trusting behaviour and online shopping decisions, only one type of influencing factor in this model restricts the possibility of overall analysis of consumer trusting behaviour. Further, because the model often contains few factors, it is difficult to accurately describe the formation process of consumer trusting intentions or make a judgment about the relationships and roles of different factors. Therefore, it is necessary to summarise these factors, propose an online trust model of multiple influencing factors for a comprehensive measurement of consumer trusting behaviour and analyse the roles of these factors in influencing consumers’ behavioural intentions.

Many empirical studies have pointed out that online reviews have a meaningful influence on consumer trusting behaviour and shopping decisions (N. Hu, Liu, & Zhang, 2008; Ye, Law, Gu, & Chen, 2011; Z. Zhang, Ye, Law, & Li, 2010; F. Zhu & Zhang, 2010). Further research shows that review information with high-quality features can significantly increase consumers’ trusting intentions (Darley, Blankson, & Luethge, 2010; Filieri & McLeay, 2014). Although researchers explain the characteristics of online reviews from different perspectives and discuss their influence on the information quality, few studies have comprehensively considered how the influencing factors of online review quality perceived by consumers affect their trusting behaviour. For this reason, this research deems it essential to further investigate the influencing factors of online review quality and the mechanism of influence. For this purpose, we propose the following questions:

_Which factors determine the quality of online reviews?_

_How can they influence consumers’ trust intention?_

Many studies have described the influence of online reviews on consumer shopping
behaviour and indicated that browsing online reviews is an important means for effective risk control among consumers (Chevalier & Mayzlin, 2018; G. Cui, Lui, & Guo, 2014; Dellarocas, Zhang, & Awad, 2007). The results of empirical research further reveal that online reviews can significantly influence the level of consumer trust in enterprises (Filieri & McLeay, 2014; H.-W. Kim, Xu, & Koh, 2004; Z. Zhang et al., 2010). However, with the further development of the internet, online reviews are made available to consumers from different channels. The existing research results seldom consider the influence of information channels on consumers’ perceptions of online reviews, and they rarely compare the further influence of online reviews from different channels on consumer trust. Therefore, we propose the following questions:

**Are there different channels for consumers to browse online reviews?**

**If so, is there any difference in their influences on consumers’ trust intention?**

Research has found that information overload is common and consumers have a limited ability for processing online review information (H. Hong, Xu, Wang, & Fan, 2017; Korfiatis, García-Bariocanal, & Sánchez-Alonso, 2012). This increases the costs for consumers’ cognition of online reviews and reduces the efficiency of trust decisions (Y. Liu, Jin, Ji, Harding, & Fung, 2013; Mudambi & Schuff, 2010). With the widespread use of social media, currently, a significant trend is that consumers prefer sharing their experiences and feelings about products, services and enterprises in the SNS environment (J.-C. Wang & Chang, 2013). Therefore, it is crucial to explore how consumers identify helpful online reviews in SNSs. This research attempts to address the following question:

**Which factors influence the helpfulness of information in the SNS environment?**

Many researchers have conducted extensive and fruitful research on the mechanism of initial trust building by consumers, especially in terms of the influence of TTPs on trust. Such research points out that the security and privacy certification significantly influence consumers’ perception of risk, further affecting the trusting intentions (Benassi, 1999; D. P. Cook & Wenhong, 2003; Özpolat, Gao, Jank, & Viswanathan, 2013). According to this
research, TTPs not only provide privacy and security certifications but also cover logistics and distribution, insurance, recommendations and other services. Therefore, it is necessary to build a complete TTP service framework system and probe into the differences in the influence of different service types on consumer behaviour. Therefore, we focus on the following questions:

**Can TTPs be exhibited in the form of a services framework?**

**Can different types of TTPs improve consumers’ trust intentions?**

Although enterprises attempt to signal their trustworthiness to potential consumers by using TTP services, researchers have not reached a consensus on the real influence of TTPs on trust (D. P. Cook & Wenhong, 2003; T. Moores, 2005; T. T. Moores & Dhillon, 2003; Özpolat et al., 2013; Özpolat & Jank, 2015). For this reason, this research re-examines the influence of TTPs on consumer trusting intentions via laboratory experimentation in a controlled environment. Accordingly, the two following questions are raised:

**Can TTPs help potential consumers build trust in unfamiliar enterprises with the trust transfer function?**

**If so, which factors can regulate and influence the trust transfer effects of TTPs?**

### 1.3 Research Content

Applying the Theory of Planned Behaviour (TPB) as the theoretical underpinning, based on related research, this research indicates that the influencing factors of consumer online trust are attitude, online reviews and TTPs. A consumer’s attitude towards online trust is influenced by the disposition to trust, previous shopping experience, current shopping environment, prices of products or services to be purchased, enterprise size and webpage design. The social influence and pressure exerted by other consumers’ online reviews on whether the target enterprise is trustworthy are jointly affected by information sources, form of presentation and information quality. Finally, consumers’ perceptions of the
structural guarantees provided by TTPs are influenced by TTP reputation, service types and the form of presenting TTPs by the target enterprise.

Based on the online trust model composed of the abovementioned related factors, from an empirical study, partial least squares structural equation modelling (PLS-SEM) is applied for exploring the influence of different factors on consumer trusting intentions and behaviour. For further probing into the internal mechanism and composition of these factors, the present research conducts a more in-depth analysis of two factors, namely, online reviews and TTPs.

First, there is already a lot of research discussing the influence of consumer attitudes. For example, it has been pointed out that the consumer’s disposition to trust has a very important effect on initial trust building (Cheung & Lee, 2006; Kiernan et al., 2002; Ma & Song, 2011). The previous transaction experience is a key criterion for consumers to build trust in the future (Beldad, van der Geest, de Jong, & Steehouder, 2012). In addition, the enterprise’s webpage design, reputation and size can also significantly influence consumers’ attitudes, thereby affecting their trusting intentions (Fam et al., 2004). In the light of time and cost limitations, widely accepted research findings are not repeated and verified here. No individual empirical research is conducted on consumer attitude, but the influence of this factor on the online trust model proposed in this research is verified in the questionnaire survey.

Second, although related research has pointed out that online reviews influence consumer perceptions of trust in enterprises, the influence mechanisms and paths of online reviews are seldom systematically elaborated. This research engages in further in-depth studies, mainly including study of the quality of online reviews, differences in consumer trusting intentions from different information channels and influence of information helpfulness perceived by consumers in an SNS environment.

Finally, related research rarely elaborates on the complete service framework system provided by TTPs, nor does it explain the internal mechanism of TTPs in trust building,
although researchers have indicated that TTPs’ security and privacy certifications can enhance consumers’ perceptions of trust in enterprises (Benassi, 1999; D. P. Cook & Wenhong, 2003; Head & Hassanein, 2002). This research probes deeply into the influence path of TTPs on consumer trusting intentions, including study of the TTP service framework system and trust transfer function of TTPs.

1.4 Research Scope

In this research, the explained variable is consumer trust in online shopping. According to Ngai and Wat (2002), online shopping is the act of purchasing products or services over the internet. On this basis, we propose that online shopping is the act that allows consumers to browse and buy goods or services over the internet. There is not a widely recognised definition of trust. For instance, Crosby, Evans, and Cowles (1990) define it as ‘a confident belief that the salesperson can be relied upon to behave in such a manner that the long-term interest of the customer will be served’, while Morgan and Hunt (1994) call it ‘confidence in an exchange partner’s reliability and integrity’. Given previous definitions, this research defines the consumer trust in online shopping as follows: consumers’ confidence in reliability and integrity of products, services and information provided by enterprises.

The research adopts a consumer perspective, which is based on consumer behaviour and explores the factors influencing online trust from the consumer’s viewpoint. To make the conclusions widely applicable, the research subjects are ordinary online consumers without restrictions over online shopping experience and internet skills. Moreover, due to limitations in research time, funding, location and so on, this research is conducted in universities using simple random sampling among people in the age group of 25–35 years with a higher education background.

1.5 Theoretical Significance

The theoretical significance of the study comprises the three following points:
1. This thesis validates and analyses the online trust model through empirical research and deepens the understanding of the consumer online trust-building mechanism;

2. A comparative analysis of online reviews from different information channels further enriches the research model on the influencing factors of consumers’ online trust; and

3. The trust transfer function and relevant influencing factors of TTPs proposed in this thesis further enrich the consumer online trust theory.

From the viewpoint of the literature, different dimensions have been adopted for research on the influencing factors of consumer online trust. This thesis, based on synthesising plenty of research findings, and the TPB and Institutional Theory as the theoretical underpinnings, proposes an online trust model including attitude, online reviews and TTPs and verifies the effects of different factors on consumer trusting behaviour and their correlations. The research also compares the influence of different channels of online reviews available on consumer trusting intentions and analyses the reasons for deviation in consumers’ decision making caused by these channels, thereby providing a meaningful basis for subsequent research.

In previous studies, researchers have realised that the trust level of potential consumers in unfamiliar e-commerce firms can be influenced by TTPs. Via laboratory experiments, this study further reveals the trust transfer function of TTPs in the process of consumer trust building. At the same time, it illustrates that a TTP’s reputation and form of presentation have regulating effects on the trust transfer process. These research conclusions represent a useful attempt towards the development and improvement of online trust theory.

1.6 Practical Significance

This research indicates factors influencing the information quality of online reviews perceived by consumers and provides a feasible method and standard for measuring the
quality of online reviews. The results can help enterprises display high-quality information, and further, enhance the trust decision efficiency of potential consumers. This can lay a good foundation for increasing consumer trust and promoting enterprises’ online sales.

This research explains the reasons and mechanisms related to the deviation in the influence on consumer trusting behaviour caused by channels of online reviews. This will help enterprises more accurately understand consumer psychology, adjust the focus of e-commerce operations and better carry out online sales.

The research also points out the factors influencing consumers’ recognition of the usefulness of online reviews in the SNS environment. Its results provide an operable criterion for enterprises to screen out useful information for consumers. It also provides corresponding guidance for determining the order and priority when enterprises process information with different features. All these points can be helpful for enterprises to build a better feedback mechanism of online reviews and improve the consumer trust level.

This thesis presents a TTP service framework and shows the influence and role of different service types on consumer trusting behaviour. These explorations are conducive to enterprises’ more accurate understanding of TTPs’ trust transfer function. They are also favourable for enterprises to take more targeted strategies in the selection of TTP services, thereby achieving better operating performance.

Finally, this research can help consumers determine the trustworthiness of enterprises in online shopping. The conclusions will be useful for consumers to build trust in enterprises.

1.7 Research Contribution

Theoretically, the research integrates trust in e-commerce with consumers’ attitudes, motivations and behaviours, as well as external structural guarantees, and it provides a new perspective for research on e-commerce and related issues. In addition, the online trust model proposed in this research may become the foundation for future research on the
management of e-commerce trust. The Three-Dimensional Integrated Trust Model built in the research integrates major factors influencing online shopping trust from different perspectives and levels, and it comprehensively and systematically discusses their interactions. In terms of the prospects for application, this research clarifies the connotations and basic characteristics of online trust for concerned parties and helps them gain a better understanding of trust and risks in e-commerce. Moreover, the research is helpful for e-commerce enterprises to better grasp the trust demand on the virtual market and understand major factors and mechanisms influencing consumer trust. Finally, this research enables enterprises to seize key factors in trust building, making it more purposeful and allowing trust risk prevention to have better effects.

This study also expounds the internal mechanism of online reviews and TTPs and their influence on trusting intentions. This provides meaningful research results to understand the influence of these two factors on consumer trusting behaviour. In addition, via laboratory experimentation, this research demonstrates that TTPs have positive significance for trust transfer. This provides valuable data for further clarifying the function and significance of TTPs.

Finally, the research makes some original contribution in the following areas:

1. It provides a framework for comprehensive consideration of the quality of online reviews and explains in detail the influence of different factors;

2. It reveals differences in information channels of online reviews and significant differences in the influence of consumer-perceived online reviews on trust;

3. It explains how to identify helpful online reviews in the SNS environment;

4. It builds a complete TTP service framework and expounds its degree of influence on consumer trust; and

5. It explains the trust transfer function of TTPs and analyses regulating factors of this function.
1.8 Research Significance

The previous sections briefly introduced the contribution of this research to the theoretical realm and development of industries, as well as the main academic achievements of this study. In the following parts, explanations of the thesis’ significance for the research on online trust are provided.

In the existing research findings, scholars have described many factors that influence consumers’ online trust behaviours and explained the effects of online reviews and TTPs on consumer behaviours. However, the current research mainly focusses on the influence of certain factors on consumers’ behavioural intentions, while it ignores the combined effect of different factors on their behavioural decisions. At the same time, most of the existing research only points out that these factors can affect consumer behaviours, failing to provide a deeper discussion of their underlying mechanism. In addition, with the continuous development of the market, as well as the innovation and application of technologies, new phenomena have arisen in the e-commerce market environment, for example, the wide application of social media and the development of TTPs from a single service to a system of multiple services. These developments have led to the need for a more thorough and deeper investigation of consumer trust behaviour. Judging from the results of this paper, the points of significance described below characterise the research.

First, this study establishes an integrated trust model, based on which, the influence of different factors on consumer behaviour is explained. This provides a comprehensive perspective for the interpretation of the process of consumers’ trust behaviour, as well as a reliable solution for accurately predicting their behaviours.

Second, this study explains the interaction of different factors in the integrated trust model. This provides a relatively comprehensive theoretical basis for illuminating the significance of different factors in the process of consumer decision-making behaviours.

Third, this study not only elaborates on the influence of online reviews and TTPs on
consumer trust behaviours but also analyses their roles in the process of consumer decision-making behaviours. It provides a theoretical framework for the industry and business fields to better understand both factors.

Fourth, the study defines a framework for measuring the quality of online reviews. Moreover, it provides operational procedures for the industry.

Fifth, it summarises the transmission channels of online reviews. It not only explains their effects on consumer behaviours and extends the practical application of relevant theories but also provides clear guidance to which enterprises can refer.

Sixth, in view of the current situation, in which social media are widely applied, this study examines the specific methods for consumers to identify useful information on SNSs.

Seventh, the study summarises the TTP service types. In so doing, it not only explains the consumer’s decision-making strategy for TTPs but also provides specific guidance for enterprises.

Finally, this study analyses the factors affecting the TTP trust transmission effect. Here, it not only explains the influence of regulatory factors on consumer behaviours but also extends the application of current trust theories.

1.9 Research Methodology

By analysing and sorting the research literature and secondary data, based on the TPB, this research constructs an online trust model based on consumer trusting intentions from the exploratory research design. Using this model, the research identifies three types of factors influencing consumer trusting behaviour, namely, personal attitude, online reviews and TTPs. Further, hypotheses are put forward on the specific composition and correlations of these factors.

To evaluate the effectiveness and overall effects of the model, an empirical study based on the survey method is conducted via several steps. First, variables involved in the
research are determined and a questionnaire is designed. Next, ordinary consumers are chosen as questionnaire respondents. Finally, for 374 valid responses, PLS-SEM is utilised for evaluating the measurement and structural models, and the corresponding research hypotheses are verified.

To further explain the mechanisms of online reviews’ effects on trust, three independent empirical studies are conducted on the information quality of online reviews, information channels and helpfulness of information. This research employs laboratory experiments to effectively measure and compare the influence of information from different channels on consumer trusting intentions, and use PLS Multi-group Analysis (PLS-MGA) for analysis of collected samples. The other two studies are undertaken in the form of targeted questionnaires, and the collected data are evaluated using PLS-SEM.

To explore the internal mechanism of TTPs, this research first summarises service types provided by TTPs in the current Australian market and builds a TTP service framework. Then, with the questionnaires, PLS-SEM is used for analysing the influence of different service types on consumer trusting intentions. Finally, through laboratory experiments, the trust transfer function of TTPs is examined, and PLS-MGA is applied for analysing relevant regulating factors of trust transfer.

1.10 Research Route

The technical roadmap of this research is shown in Figure 1.1. Generally, it is divided into the four following stages: literature review, building of online trust model, empirical research and research conclusions.
As mentioned above, the main purposes of this research are exploring influencing factors of consumers’ online trust and providing an in-depth analysis of their internal mechanism. Therefore, in the empirical research stage, this research is mainly carried out according to the route shown in Figure 1.2.

**Figure 1.2 Technical Roadmap in the Empirical Research Stage**

The **First Stage** is testing the proposed Three-Dimensional Integrated Trust Model and examining the influence of different factors on consumer trusting intentions, as well as the interrelationships of these factors. The **Second Stage** is further investigating the mechanism of online reviews and their influence on trusting intentions. This mainly consists of the following three aspects:

1. The influencing factors of the online review quality are examined using questionnaires, and the influence of these factors on trusting intentions is analysed;

2. By laboratory experiments, a comparison is made with the influence of online
reviews from different information channels on consumer trust behaviour; and

3. The questionnaires are administered to explain relevant influencing factors of the helpfulness of SNS-based online reviews perceived by consumers and the degree to which these factors influence trust.

The **Third Stage** discusses in detail the influence and internal mechanism of TTPs on trust behaviour, mainly involving the following two elements:

1. Exploring the influence of different TTP service types on consumer trusting behaviour; and

2. Verifying the role of TTPs in the trust transfer process and analysing the regulating factors that influence the trust transfer.

**1.11 Thesis Structure**

The core of this thesis is providing an integrated trust model and exploring the mechanism of the influence of these factors on consumer behaviour more deeply after verifying the influences of different factors on consumers’ online trust. Therefore, the experimental design is as described below.

First, based on the literature review, this thesis proposes an integrated trust model. Chapter 4 also verifies these factors’ influences on consumer trust behaviour by empirical research.

Second, this thesis divides the influencing factors of consumer trust behaviour into three categories—individual attitudes, online reviews and TTPs. Current research results have comprehensively discussed the influences of consumer attitude–related factors on online trust behaviour in detail. Therefore, we decided not to repeat the process of proving the specific roles of these factors in the trust model in this thesis, and instead, mainly discuss the mechanism and influencing factors of the other two types of factors on consumer behaviour.
Third, to help form a deeper understanding of the influences of online reviews and TTPs on consumer behaviour, I designed two groups of experiments. The first considers the influences of online reviews on consumer, while the other group addresses TTPs’ mechanism of influence in trust building.

Fourth, an important innovation of this thesis is introducing the differences in online review channels and establishing a relatively complete quality evaluation system for online reviews. Thus, in the follow-up research design, I separate the first group of experiments into two parts: One focuses on the influences of different information channels on consumer behaviour, while the other analyses the influencing factors of consumer perceived information quality. With the wide application of social media services and on the foundation of the previous two experiments, I further explore the consumer perceived online comment in the SNS environment. Therefore, I carry out the third experiment to explore the helpfulness of the information. I discuss the three experiments Chapter 5–7.

Fifth, in the explanation of the functions of TTPs in the thesis, I point out that TTPs have various types of services, and they enable consumers to transfer trust in the business-to-customer (B2C) e-commerce environment. Because of this, I separate the second experiment into two parts. The first part mainly focuses on TTPs’ service system, whereas the second explores TTPs’ trust transfer function and regulatory mechanism. To help readers understand TTPs’ mechanism of influence in the process of trust building, I discuss and explain TTPs’ types of service and the mechanism of transmission in depth in Chapters 8 and 9, respectively.

This thesis is organised as follows:

- Chapter 1 introduces the background of the research and explains the research purposes and significance, content, methods and contributions, as well as the technical route followed;
- In Chapter 2, a systematic review, summary and evaluation are carried out on the formation, concept, attributes, establishment and classification of trust and
influencing factors of trust formation. On this basis, the research directions are clarified;

- Chapter 3 introduces theories that are often applied in the online trust research, explains why the TPB is used as a theoretical basis for this research and describes the research and data analysis methods adopted in this research;

- Based on the TPB, in Chapter 4, this research classifies and sorts the influencing factors of consumer trust, constructs the model and proposes corresponding hypotheses. Via empirical research, PLS-SEM is applied for processing and analysing the collected data, explaining the influence of different factors on consumers’ online trust and testing research hypotheses;

- Based on the online trust model, Chapter 5 explains the criteria for consumers to judge the quality of online reviews, expounds factors that can significantly influence the information quality perceived by consumers and points out that high-quality online reviews have a more obvious influence on consumer trusting intentions;

- Chapter 6 compares the channels of online reviews made available to consumers, elaborates on the significant differences in the influences of different channels on consumer trusting intentions and further explains the importance of channels for online reviews perceived by consumers;

- Taking the SNS-based online review as an example, Chapter 7 elaborated on the relevant influencing factors and framework for the helpfulness of online reviews as perceived by consumers under the SNS environment. It explains the means and criteria for consumers to process and judge helpful information;

- Chapter 8 summarises the TTP service types, expounds on their role and significance and explains and compares the influence of different service types on consumer trusting intentions;
• Chapter 9 describes the trust transfer function of TTPs during the formation of consumer trust and examines regulating effects of the TTP reputation and form of presentation on the trust transfer function; and

• In Chapter 10, the main research conclusions are reached, and their academic and industrial significances are discussed. Finally, deficiencies existing in this research are clarified to put forward suggestions for future research.

The structure of this thesis is illustrated in Figure 1.3.
<table>
<thead>
<tr>
<th>Chapter 1 Introduction</th>
<th>Introduce the background, content, methods and contributions of the research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 2 Literature Review</td>
<td>Review and evaluate the relevant literature of trust and factors influencing trust formation</td>
</tr>
<tr>
<td>Chapter 3 Research Methodology</td>
<td>Introduce theory applied in the online trust research</td>
</tr>
<tr>
<td>Chapter 4 Three-dimensional Full Trust Model</td>
<td>Construct the online trust model and test research hypotheses</td>
</tr>
<tr>
<td>Chapter 5 The Influencing Factors for Online Review Quality</td>
<td>Explain the criteria for consumers to judge the quality of online reviews</td>
</tr>
<tr>
<td>Chapter 6 The Effects of Different Channels of Online Review</td>
<td>Compare the channels of online reviews made available to consumers</td>
</tr>
<tr>
<td>Chapter 7 The Determinants of SNS-based Online Review Helpfulness</td>
<td>Explain influencing factors for the helpfulness of online reviews perceived by consumers</td>
</tr>
<tr>
<td>Chapter 8 The Effects of Different TTP Services</td>
<td>Explain and compare the influence of different service types of TTPs</td>
</tr>
<tr>
<td>Chapter 9 Trust Transfer Mechanism of TTPs</td>
<td>Describe the trust transfer function of TTPs during the formation of consumer trust</td>
</tr>
<tr>
<td>Chapter 10 Discussion and Conclusions</td>
<td>Discuss main research conclusions and their significances</td>
</tr>
</tbody>
</table>

**Figure 1.3 Structure of Thesis**
CHAPTER 2
LITERATURE REVIEW

A literature review is not only helpful for choosing a breakthrough point but also for establishing the research framework, selecting the research method and determining the research procedure. This research mainly aims at determining the definition and composition of trust, the consumer trust-building process and factors influencing online trust. In this chapter, through a review of relevant literature, it is anticipated to clarify the present status of studies in the field of consumers’ online trust and summarise the achievements and deficiencies of the current studies.

2.1 Background

There are many risks and uncertainties in the increasingly complex B2C e-commerce environment, such that the B2C e-commerce trust issue has been the critical factor in deciding whether B2C online shopping is successful (Abyad, 2011). The B2C e-commerce trust issue is important because the characteristics of such commerce result in a higher degree, wider range and more complex situation of uncertainties and risks compared with traditional commerce (Corbitt, Thanasankit, & Yi, 2003). Based on these factors, B2C e-commerce trust research has emerged as a separate research focus, and it is attracting increasing interest among the relevant researchers.

2.2 Concept and Attributes of Trust

2.2.1 Definition of Trust

At present, there is no precise and widely accepted definition of trust, but most researchers think that trust is a type of subjective belief (Gefen, Karahanna, & Straub, 2003b; Gefen & Straub, 2004; Dan J. Kim, Ferrin, & Rao, 2008). For example, belief in people’s
or services’ integrity, authenticity, capability and reliability demonstrates trust. At the same time, people understand trust from different angles based on their distinct purposes (Hoffman, Novak, & Peralta, 1999).

Although this research focusses on the concept of trust in the field of B2C e-commerce, the trust model derived from social science is a good starting point for researching a basic and comprehensive formal trust model (D. H. McKnight & N. L. Chervany, 2001). In this research, a method is put forward by collating the related documents to divide the trust research results into sociology, philosophy, management, economics, politics and other fields and conceptually classify it into the three following categories:

- **Propensity to Trust**: When people naturally tend to trust entity A, it is called propensity to trust;

- **Intention to Trust**: When entity A is happy to depend on entity B, it is called intention to trust; and

- **Behaviour to Trust**: When entity A voluntarily depends on entity B, it is called behaviour to trust.

Trust is often related to the context, and the establishment of trust takes time (Urban, Amyx, & Lorenzon, 2009). In one context, people may trust someone, but in another, they may not. When we say that Tom trusts Jim, Tom is called the trustor, and Jim is called the trustee. The establishment of trust is also related to the past experience between the trustor and the trustee (Gefen & Straub, 2004). For example, in the business context, people trust the old business partner more than the new customers.

Based on the above views, trust is a kind of attitude, representing the trustor’s subjective recognition of the ability and tendency of the trustee. In other words, trust is a type of belief of the trustor concerning the ability and attitude of the trustee to complete a task in a certain environment according; it stems from the trustor’s experience or others’ recommendations.
2.2.2 Characteristics of Trust

We can see from the definition above that trust has some important characteristics, such as the following:

- **Subjectivity**: Different individuals’ points of view vary due to individual preference and other factors;

- **Possibility Expectation**: The trust degree can be expressed as the possibility estimate for the event occurrence probability; and

- **Environmental Correlation**: Trust relates to certain aspects of the component in a certain environment (e.g. the ability to complete certain task).

In addition, trust has the following characteristics (Z. Cui & Tang, 2010):

- **Dynamic Nature**: In general, the trust relationship is not static. A will not always trust B;

- **Asymmetry**: The fact that A trusts B does not imply that B will trust A to a certainty;

- **Intransitivity**: The fact that A trusts B and B trusts C does not imply that A will trust C; and

- **Discrepancy of Trust Degree**: There is a trust discrepancy among different entities, and this is usually measurable. For example, it can be classified into high, medium, low and other degrees of trust. In many systems, it is even measured with different values.

2.3 Common Terms Related to Trust

**Risk**: Trust is closely linked to risk. If there is no risk, it is unnecessary to consider the trust issue (D. Harrison McKnight & Norman L. Chervany, 2001). Lack of risk implies
confidence, namely, an inevitably positive result. In contrast, risk implies unpredictable future events, so trust is required to overcome uncertainty and ensure that the interpersonal relationship can be established. In other words, we should regard the trust as confidence when facing risk.

**Trust Value:** This refers to a measurement performed by the trustor in the trust relationship of the trustee (Zhao & Xu, 2009). In many subjective trust models, the trust value is commonly expressed as a numerical value between 0 and 1.

**Trust Degree:** This is one of the trust values. The trust degree represents the subjective probability expectation of the subject to the object, and it is usually expressed as a numerical value between 0 and 1 (Nagmetov, 2007). The greater the value, the higher the trust degree. The trust degree is generally calculated using the mathematical assessment model.

**Trust Policy:** This is an extension of security policy, which is a formal description specifying the trust action and the trust relationship between the trustor and trustee (Papadopoulou, Andreou, Kanellis, & Martakos, 2001). It is usually expressed using a certain trust policy language.

**Reputation:** This represents an expectation of the future behaviour of the entity based on the information or observation for the past actions of the entity (Jøsang, Ismail, & Boyd, 2007). It can also be regarded as an image established for the entity in the community. In the e-commerce community, it usually refers to an acceptance of the entity’s business reputation by other entities based on the honesty or service quality represented in the electronic transaction in which the entity participated in the past.

**Reputation System:** This is short for reputation-based trust management system (Hasnae & Hanan El, 2013). Here, the trust relationship between entities is established based on the reputation of each entity.

**Trust Model:** This is an abstract description refined for understanding the trust behaviour of consumers and the process of trust decision making (M. K. Lee & Turban, 2001).
Overall, the trust model has the following three features: it is the abstract of the trust behaviour of consumers, it consists of the influencing factors that reflect the trust behaviour of consumers and it epitomises the relationships among these influencing factors. With the trust model, enterprises can achieve a quantitative analysis of the trust behaviour of consumers. Meanwhile, the trust model can also become the tool of enterprises when predicting and making decisions and helping enterprises to enhance consumers’ trust level.

2.4 Trust in e-Commerce

Although researchers hold different opinions on the definition of trust and what words should be used to describe it, it is generally admitted that trust arises from carrying out judgment according to the words and deeds of the specific object (Hoffman et al., 1999). However, earlier trust studies did not amplify the specific characteristics of the trustee shown in their words and deeds, but instead, generally pointed out that the words and deeds of the trustee are trustworthy and the trustor has faith in them (J. Cook, 1980). Morgan and Hunt (1994) began to bring the reliability and integrity of the trustee into the research. Researchers then began to emphasise the importance of the characteristics possessed by the trustee according to these concepts. For instance, Das and Teng (1998) contend that trust is used to assess others’ reputation and reliability.

In the research field of consumer trust, most researchers point out that the characteristics of the trustee may influence consumer trust; moreover, the establishment of trust may influence the transaction intention in the future (Akhter, Hobbs, & Maamar, 2004; Azam, Fu, & Abdullah, 2012; Canavari, Fritz, Hofstede, Matopoulos, & Vlachopoulou, 2010). The research of Doney and Cannon (1997) indicates that consumers place different levels emphasis on the characteristics of different trust objects (e.g. companies, salespeople and theatres). In other words, when the trustor faces different trustees, the factors influencing the establishment of his/her trust vary according to different objects. For instance, the trust of the consumer in the supplier’s company is affected by characteristics like the reputation and scale of the supplier; in contrast, the consumer’s trust in the salesperson is
affected by characteristics like the professionalism and power of the salesman.

The degree of personal trust is influenced by the cultural background, personality and experience (Corritore, Kracher, & Wiedenbeck, 2003; F. Li & Liu, 2010). Bhattacharya, Devinney, and Pillutla (1998) argue that all the characteristics possessed by the trustee can be regarded as necessary conditions, but they are not sufficient for the establishment of trust. For most transaction objects, they have more or less trustworthy characteristics. However, when the trustor perceives the characteristics of the trustee, the interpretations of the trustor to the characteristics that may arouse trust are extremely different. For instance, a website can put into a lot of money into enhancing its reputation, but some consumers may determine that the website is devoting major efforts to carrying out the operation while some of them think that the business is conducting the gaudy self-packaging. This means that they may look at the website’s actions as “window dressing”, where the company puts more effort into looking trustworthy than actually being trustworthy. This difference is mainly caused by individuals’ different personal characteristics. Therefore, the research on the establishment of trust of online consumers also needs to study the personal characteristics of the consumer.

The consumers tend to rely more on recommendations passed by word of mouth than the relevant information about the product (Dellarocas, 2003). This is because personal recommendations are more trustworthy than general information or advertisements for the product. The consumers are more willing to trust comments on the product or service from people with use or related experience, as they think these comments are truer and more trustworthy (Fei, 2011). In the research on online trust, Resnick, Zeckhauser, Swanson, and Lockwood (2006) point out that measuring the professional degree of information sources can serve as an important factor in online trust. Online reviews are persuasive and can change the attitudes of other people because this kind of information source has the following elements: trust, professionalism, commonality and attraction; the most important of these is trust. The research of Fan, Miao, Fang, and Lin (2013) demonstrates that, for products that are complex and need professional knowledge,
consumers are inclined to adopt the recommendations of experts, but for general daily living supplies, consumers think highly of commonality and tend to adopt the recommendation of other consumers.

In the environment of B2C e-commerce, consumers usually do not have the ability to control the websites that are engaged in transaction activities on the internet, nor do they have any way of ensuring the quality of the information provided by the websites or the ability to influence the websites’ actions (Ma & Song, 2011; Xiao, 2010). Özpolat et al. (2013) have discussed the extension type of trust, where a product is certified by organisations with credibility, indicating to the outside world that the accredited objects are trustworthy. It also shows that, even if the consumers do not have any transaction experience with the transaction objects, they can still trust the transaction objects due to the certification of the TTP organisation.

2.5 Differences between Online Trust and Traditional Trust

From the perspective of historical development, trust objects gradually have expanded from acquaintances in a small circle to strangers without blood or geographical relation, covering a much wider range; this also changes the judgment of trust: in the face of strange objects, consumers tend to rely on external objective conditions to consolidate and strengthen the trustworthiness of strangers in trust building because of information asymmetry (Canavari et al., 2010; Dey, Nabi, & Anwer, 2009; D.-S. Zhu, O’Neal, Lee, & Chen, 2009).

Online marketing includes Internet technology as a medium in transactions. This eliminates temporal and spatial constraints but also increases invisibility, cross-regionality and non-synchronization, thereby highlighting distinctions between the trust of online consumers and that of traditional consumers (F. Li & Liu, 2010; Tao & Li, 2009).

The consumer in a traditional transaction tends to go to the store in person and engage in face-to-face communication, after which the transaction is completed once the satisfied
buyer and seller reach an agreement. E-commerce has made a major change that it is neither dependent on physical stores for transactions nor limited any longer by business time (J. Liu, 2011). Increased uncertainty due to the inability to obtain relevant information through sense of touch and face-to-face communication in virtual online transactions, in addition to many other factors, is significantly affecting the process of trust building between consumers (D. H. McKnight & N. L. Chervany, 2001). This makes it necessary to explore and understand in depth the process of trust building and maintenance of online consumers, and the influencing factors and mechanism of online trust.

2.6 The Significance of Trust in B2C e-Commerce

Bowen and Shoemaker (1998) point out that consumers want to engage in favourable word-of-mouth advertising for the businesses they trust; moreover, they frequently intend to repurchase their products and services in future. Thus, trust is an important factor that determines the marketing effect. This is especially important for B2C e-commerce, for the following reasons

2.6.1 Trust Can Decrease the Transaction Cost

In the fields of sociology, organisational behaviour and marketing, many studies have mentioned that trust can decrease the cost of e-commerce (Akhter et al., 2004; Azam et al., 2012; Corbitt et al., 2003). In e-commerce activities, if the trust degree is relatively low, complex contracts, supervision and legal method can be relied on only to ensure the normal pursuit of e-commerce, and the transaction cost will be high. In contrast, if the trust degree is relatively high, then the demand for control mechanisms will be vastly decreased, so the transaction cost will be lower.

2.6.2 Trust Can Reduce the Transaction Risk

In commercial activities, the weaker the transaction party’s control of the other party is, the more trust of the other party the transaction party will need. A clear expectation of the
other party’s behaviour is based on the trust of that party. This expectation will reduce the transaction risk (D. Harrison McKnight & Norman L. Chervany, 2001).

2.6.3 Trust Can Improve the Further Cooperation of Each Transaction Party

Trust is freely given according to the trustor’s intent. The purpose of trust is to maintain the good cooperation of both parties for mutual benefit (D.-S. Zhu et al., 2009). When people think the behaviour of others may damage their interests or face relatively high decision risks, whether they trust the other party may determine how they will act. For each transaction party in commercial activities, on the one hand, trust means contract compliance, namely quality assurance, delivery as scheduled and payment on time. This will reduce unnecessary negotiation and consultation and decrease the time expenditure caused. On the other, trust also means a certain degree of flexibility. This is reflected in the following: When unpredictable incidents occur or discrepancies exist in the process of contract implementation, both parties of transaction can understand and cooperate mutually.

2.7 Levels and Classification of Trust

Fishbein and Ajzen (1977) divided trust into beliefs, attitudes and trusting intentions according to the trust-building process. Beliefs refer to consumers’ expectation and initial feeling towards an enterprise’s reputation. For example, it may be anticipated by consumers that the enterprise can defend its integrity in the transaction process and deliver goods as agreed, representing beliefs. An attitude refers to positive or negative views of the enterprise by consumers. Trusting intentions means the degree that consumers intend to depend on the enterprise even if they have no control over its behaviour. Beliefs lay a foundation for determining consumer attitude, but attitude decides consumer trusting intentions.
D. Harrison McKnight, Vivek Choudhury, and Charles Kacmar (2002) propose that trust consists of four dimensions, namely, disposition to trust, institution-based trust, trusting beliefs and trusting intentions. Through empirical research, it is found that consumers with a higher disposition to trust can perceive the online environment better, that is, they are more likely to establish institution-based trust; in turn, they can better perceive trustworthy traits of enterprises—that is, they have strong trusting intentions. Empirical studies by other researchers also pointed out that trusting intentions decide consumer’s actual trusting behaviour (McKnight et al., 1998; Salam et al., 2005; Shankar, Urban, & Sultan, 2002; X. Zhang & Zhang, 2005).

According to Lewicki and Bunker (1996), there are three types or stages in the development of trust, which are as follows: deterrence-based trust, knowledge-based trust and identification-based trust. Deterrence-based trust is the result of long-term accumulation because the parties understand that they will be punished for violating contracts and rewarded for fulfilling them. In a solidly constructed society, reputation is valued due to the high costs of violating agreements, so deterrence-based trust is effective, and social rules work well. Knowledge-based trust is grounded in one party’s familiarity with another party. The predictability of future behaviour and direction comes from a prior understanding of the other party. Mutual trust can be enhanced by frequent interaction. Identification-based trust means understanding and appreciating the other’s views and ideas, thereby becoming intimate and psychologically close. Mutual understanding and cooperation can greatly improve identification-based trust.

2.8 The Consumer’s Trust Perception

E. Kim and Tadisina (2005) suggest that the company’s reputation and size can exert influence on consumers’ trust. The study of Koufaris and Hampton-Sosa (2004) further demonstrates that consumers’ perception of trust is mainly affected by the company’s reputation. This research also points out that consumers’ trust attitude towards a website is jointly influenced by its usability and ease of use. Wakefield, Stocks, and Wilder (2004)
conduct an empirical study to prove that the quality of a website may affect consumers’ trust. A paper by Everard and Galletta (2005) also confirmed that incomplete and wrong website display could degrade consumers’ trust. Shankar et al. (2002) study on factors influencing consumer trust shows that the product is one such factor. Especially, product related traits in online transactions, such as product quality, reliability and validity, can affect consumers’ trust to some extent (Ba, 2001). Moreover, the research results also reveal that some factors and consumer traits are critical for trust building. For example, based on a literature analysis, Ling, Chai, and Piew (2010) propose that consumers’ shopping experience can affect their behaviours. An empirical study by McKnight et al. (1998) indicates that consumers’ individual trust propensity can have a significant effect on institution-based trust and trusting beliefs. In addition, Corbitt et al. (2003) point out that the confidence in e-commerce technology perceived by consumers will significantly affect their perceived trust. Cheung and Lee (2006) study the effects of the legal framework in an external environment on consumers’ trust in online shopping, and the results suggest that this has a significant influence on consumers’ trust. To summarise, it is considered that factors influencing consumer’s individual trust mainly comprise the following: the enterprise, website, product, environment, experience and trust propensity.

2.9 Influence of Other People’s Comments

In the research on online trust, Johnson and Kaye (2000) point out that measuring the professionalism of an information source can serve as an important trust factor. Other people’s comments are persuasive and can change other’s attitudes because this type of information source has the following elements: trust, profession, commonality and attraction, of which, the most important is trust (Cheung, Lee, & Rabjohn, 2008; M. K. Lee, Cheung, Lim, & Ling Sia, 2006). The research of Senecal and Nantel (2004) demonstrates that, for products that are complex and need professional knowledge, consumers are inclined to adopt the recommendations of experts, but for general daily living supplies, consumers think highly of the commonality and tend to adopt the recommendation of other consumers. In addition, for the influence on consumers’ decision making in trust,
potential consumers can understand other consumers’ use experience of the products or services and shopping experience more quickly and comprehensively through the online shopping environment (Awad & Ragowsky, 2008). The information will provide the consumers with a corresponding basis for making decisions and simultaneously shorten consumers’ time spent in making purchase decisions (Senecal & Nantel, 2004). Essentially, due to the trust in the relevant information included in other people’s comments, potential consumers constitute their trust intention, which will influence their trust behaviour (Dan J. Kim et al., 2008; M. K. Lee et al., 2006).

The influences of other people’s comments can be divided into two factors. One is the influence on the decision making in trust of potential consumers, while the other is the influence on the brand loyalty of existing consumers (Dey et al., 2009; Resnick, Zeckhauser, Friedman, & Kuwabara, 2000; Sutanonpaiboon & Abuhamdieh, 2008). Other people’s comments play two roles at the same time—that of the information provider and information presenter. From the perspective of the information provider role, a comment has strong trustworthiness because it has no obvious characteristics of commercial advertisement or an interest relationship. In terms of the information presenter role, to some extent, the number of comments can represent the degree of prevalence and popularity of the products. Both roles play a key part in the brand choice, trust decision and purchase decision made by the consumers.

Other people’s comments have a significant influence on customers’ brand loyalty (Bowen & Shoemaker, 1998). Gauri, Bhatnagar, and Rao (2008) compare the influences of consumers’ evaluation and other factors on their brand loyalty in an online shopping mall. Via research on various types of products, they find that, of 15 influencing factors, the proportion of consumers’ positive comments has the greatest influence on the repurchase intention.

Other people’s comments are also highly significant for enterprises. The companies will spend less on advertising if they have word-of-mouth endorsements, so their products will be less expensive. Through this, the enterprises can come into contact with the
consumers to the maximum extent with a lower cost. Here, people can share and discuss information about various topics, such as products, services and even news and fashions. The e-commerce enterprises can make use of online comments published by the consumers to establish the consumer trust in online shopping and build comment and feedback mechanisms (Mudambi & Schuff, 2010). At present, there are also many special commenting websites, which help the consumers and enterprises to collect relevant information from comments, which serve as the decision reference of consumers and enterprises’ tool for improving their marketing management.

Online reviews have a great influence on consumers’ trust behaviour of consumers, but the effectiveness of online reviews is related to the credibility of the commentator, quality of the comment and other factors (J. Liu, 2011; Resnick et al., 2000). On the whole, the online review does not exist independently in the e-commerce environment. It mainly involves two different subjects: One is the producer of online reviews, namely, the publisher of relevant comments; the other is the receiver of online reviews, namely, the potential consumers who browse through the relevant comments. In view of the two different subjects, many scholars think that the online review influences the trust behaviour of consumers, and this mainly depends on two factors. These are the creditworthiness of the publisher who produces the online review and the quality of the comment perceived by the receiver of the online review (Beldad, de Jong, & Steehouder, 2010; N. Hu, Bose, Koh, & Liu, 2012; N. Hu et al., 2008; Y. Liu et al., 2013; Sparks & Browning, 2011; Utz, Kerkhof, & Van Den Bos, 2012).

The creditworthiness refers to the seniority and credit rating of the network commentator in the network or real society (Lis & Neßler, 2013). It can reflect the professional ability and specialty of the commentator. Commentators with high creditworthiness have abundant market information related to products, consumption sites and other elements. They are the main writers and propagators of product comments. Commentators with a higher creditworthiness are highly active on the commenting websites and in the forums of various products. Moreover, they are willing to actively participate in the discussion and
share information with other consumers. In the virtual community on the network, the stronger professional ability the commentators with high creditworthiness have in the related product field, the more easily their opinions will be adopted by most members of the community. Therefore, the higher creditworthiness the commentators have, the higher credibility the receiver of the comment information will perceive from the online comments. Moreover, when searching comment information on the internet, consumers tend to refer to the comments published by the professionals with a higher professional level. In their view, these people—with their high professional level and prestige—are trustworthy (Papadopoulou et al., 2001). Thus, the creditworthiness of the commentator has a greater influence on the trust behaviour and intention of consumers. In view of this, the higher creditworthiness the commentators have, the greater influence they will have on consumers’ trust intention in the context of online shopping.

The quality of the comment is the level of detail at which an online review describes the product, service or shopping experience (Grabner-Kräuter & Kaluscha, 2003; D Harrison McKnight, Vivek Choudhury, & Charles Kacmar, 2002). This involves whether the content of the online review is true and reliable, whether it is closely related to the product and whether it has sufficient information. All these points can be used by the consumers for different references. A true and reliable online review can assist the consumers in making right and valuable trust decisions, while false network comments will be harmful to the interests of the consumers. Scholars think that an online review with high quality generally features truth, authenticity, objectivity, understandability and sufficient information (Litvin, Goldsmith, & Pan, 2008). The content of an online review with high quality is objective and concrete, and its opinion is supported by sufficient arguments; in contrast, the content of the online review with low quality is subjective and abstract, lacking detailed and logical analysis. Compared with the public opinion on a review with low quality, an online review with high quality is more convincing for the consumers. Moreover, an online review exhibiting logicality, convincingness and sufficient arguments, has relatively strong and positive effects on the trust intention of consumers. Therefore, many scholars think that an online review with different qualities will influence the trust
intention of consumers to different degrees (Chevalier & Mayzlin, 2018; G. Cui et al.,
2014; Kusumasondjaja, Shank, & Marchegiani, 2012; S. S. Li & Karahanna, 2015; Ye
et al., 2011; F. Zhu & Zhang, 2010). In other words, the better the quality of comment
information is, the greater the online trust intention of consumers will be.

2.10 Perception Risk Control of Consumers by External Re-
sources

Perception trust control of online consumers by external resources is not consumers’ trust
in the transaction counterpart, but instead, the belief that a complete transaction institution
can secure their rights and interests. D. H. McKnight and N. L. Chervany (2001) split
institution-based trust into two constructs, namely, structural assurance and situational
normality. Structural assurance means consumers’ evaluation of protective structures
 guarant ees, regulations, promises, legal recourse, etc.). Situational normality means con-
sumers’ evaluation of whether the online shopping environment is normal or complies
with customs. If an online retailer cannot meet the expected situations, consumers will
have less trust because they will believe the situation is abnormal. In an online shopping
environment, many consumers carry out transactions for the first time with a certain mer-
chant, so they expect extra and reliable protection from third parties. The study by Pavlou
and Gefen (2004) suggests that TTPs can effectively enhance consumers’ feeling of trust.
Cheung further indicates that third-party certification has an important effect on consum-
ers’ trust. Moreover, K. M. Kimery and McCord (2002) find that TTPs can exert signifi-
cant influence on consumer trust.

Scholars have conducted in-depth studies on the establishment mechanism of initial con-
sumer trust and the influencing factors of online trust. The results of empirical research
show that consumer perception of webpage usefulness, usability and security is a vital
prerequisite for trust (Yang, Pang, Liu, Yen, & Michael Tarn, 2015; X. Zhang & Zhang,
2005). Further research reveals that the reputation of enterprises, trust tendencies of con-
sumers and structural assurance (institution-based trust) have a significant influence on
consumers’ trust intentions (Walczuch & Lundgren, 2004). In industrial communities, a large number of TTPs have sprung up to enhance consumer trust in online transactions. They provide guarantees and support for the smooth operation of online transactions via different technical means and intermediary services. VeriSign, for example, provides security for consumers’ online transactions, while TRUSTe verifies enterprises’ protection of consumer privacy. Thus, both services effectively relieve users’ privacy concerns.

In many cases, especially with new transactions, it is difficult for both parties in an online transaction to build a trust relationship. However, through an intermediary trusted by both parties, a chain of trust can be formed, thereby building indirect trust between them to facilitate the completion of the transaction. A TTP that operates independently and under strict industry rules and institutionalised guarantees can, to the maximum extent, prevent the certification process from being affected by external commercial interests while warranting the fairness, objectivity and authenticity of the certification results. Certification through TTP can curb outside interests from being tempted by uncertainties and opportunistic behaviours (Pavlou & Gefen, 2004). Essentially, e-commerce transaction parties are not familiar with each other before the transaction, and they also lack the on-the-spot observation and judgment basis on which traditional business builds trust. Online buyers and sellers must build trust using little information. TTPs may provide more information to facilitate a mutual understanding between the buyer and seller. In the e-commerce environment, TTPs provide an important reference for consumers to judge the qualifications and integrity of e-commerce companies, and they greatly promote the formation of trust.

Scholars also indicate that TTPs play a role in trust transmission, which promotes the flow of credit information from enterprises to consumers and enables consumers to have a more comprehensive, objective understanding of the credit situation of enterprises before trading (Head & Hassanein, 2002). The credit information of an enterprise may be transmitted to consumers based on the TTP. Consumer trust in enterprises lies in consumer trust in TTP. Through chain relationships, the reliable information of enterprises can be effectively transmitted to consumers, thereby affecting consumer trust behaviour.
and decision making while effectively promoting consumer trust in enterprises.

2.11 Factors Influencing Consumers’ Online Trust

In traditional commerce, the trust object is the enterprise or company. In the B2C e-commerce environment, the direct trust object is the enterprise or company website (Beldad et al., 2010), and the enterprise or company becomes the indirect object. (The trust relationship is shown in Figure 2.1.

![Diagram of Trust Relationship between Consumer and Enterprise]

Figure 2.1 Trust Relationship between Consumer and Enterprise

In addition, the B2C e-commerce needs to be supported by internet technology, and the transactions feature anonymity and face the corresponding external environment at the same time (Dan J Kim, Song, Braynov, & Rao, 2005). Therefore, the factors influencing trust in the B2C e-commerce environment are much more complicated than those in traditional business activities. Synthesising the research results of scholars in the related fields, this research suggests that the factors influencing consumers’ trust attitudes can be analysed from the following perspectives: the e-commerce enterprise, enterprise website, individual characteristics of consumers and external environmental factors. (The components of personal attitude are shown in Figure 2.2.)
2.11.1 Influencing Factors Related to the e-Commerce Enterprise

In the research frame of this thesis, two variables are chosen as the e-commerce enterprise factors, specifically, enterprise scale and corporate recognition. The reasons for this are described below.

If consumers perceive the existence of risk in the purchasing process, they will eliminate their insecurity and anxiety by seeking methods to reduce the risk (Al-Dwairi & Kamala, 2009; Roselius, 1971). In general, there are two ways of reducing risk perception. One is reducing risk perception by increasing the certainty of results (e.g. purchasing the products of large, powerful manufacturers or purchasing famous brand products); the other is reducing the risk perception by lowering the level of loss (e.g. choosing the businesses with a money-back guarantee).

2.11.1.1 Enterprise Scale

The enterprise scale means the scope of goods and services (D Harrison McKnight et al., 2002). A larger enterprise scale signifies that the enterprise has more ability to meet consumers’ demands. It also represents the enterprise resources that are invested in operations. The enterprise will suffer a greater loss if it is engaged in actions that destroy trust. Therefore, in theory, it is easier for an enterprise with larger scale to establish the trust.

The research results of marketing indicate that, generally, consumers are more inclined to trust the business with a larger scale (Tao & Li, 2009). The consumers usually believe that the large-scale companies have enough ability to provide them with the services that
they want. Large-scale companies are usually willing to invest in their reputation and brands and give reasonable compensation to consumers when the products they sell have problems. Therefore, large-scale companies can often improve consumers’ trust attitude towards them.

2.11.1.2 Corporate Recognition

From the perspective of brand value, Donthu (1995) points out that most consumers will choose the brand that they have heard about or the good produced by a famous large company when they want to choose one from a series of similar goods and complete the transaction. In the literature, Y. D. Wang and Emurian (2005) also find that the most important factor influencing the establishment of trust is the scale and reputation of the company.

Based on the previous studies, this research suggests that corporate recognition is affected by two variables, namely, the company’s brand and reputation (L. Liu & Shi, 2010; Resnick et al., 2000). The company’s brand refers to the brand of the online company or its operations website; the brand usually symbolises the quality and guarantee, and an outstanding brand generally provides high-quality products and satisfying services. The more value the brand has, the smaller the risk that the consumers suffer when buying the products or services provided by the company or website and the higher consumers’ degree of trust in it will be. The reputation of the company refers to the degree of honesty, concern and agreement fulfillment that the company shows to the customers as perceived by the consumers. In addition, this reputation can be transmitted among the consumers. If everyone believes that the company can treat its consumers honestly, reliably and fairly, other consumers who are new to the company will also recognise and trust the company.

2.11.1.3 Personalised Products and Services

In addition to the two variables described above, which can influence consumers’ trust attitude towards enterprises, with the new development tendency of B2C e-commerce at present, this research contends that the personalised customisation of products and
services will be able to improve consumers’ cognitive level of trust (Ilyoo B. Hong & Cho, 2011). This is because, in the current market environment, popular goods have been unable to meet the individual demands of consumers. With personalised products and services, the website will be closer to consumers and make consumers experience a sense of dependency and belonging.

Discerning the special demands of users and providing them with targeted personalised services is another way for businesses to elicit consumers’ trust in the e-commerce environment. Under the B2C e-commerce mode, in addition to the passive acceptance of the goods or services provided by the businesses or manufacturers, the consumers can also actively make demands of the businesses according to their needs. Thus, consumers can participate in and influence the production and operation process of the company. With the increasing communication between the consumers and companies, the trust level is also improved. The research performed by Koufaris and Hampton-Sosa (2004) and other scholars has shown that providing customised products and services can significantly affect consumers’ trust. Meanwhile, if consumers’ demands can be satisfied by the company and consumers can truly experience the concern of the operators, the consumers will think that the company is competent and kind, two points that are basic elements in the establishment of a trust relationship.

2.11.2 The Influencing Factors Related to the Enterprise Website

A large amount of literature suggests that the website is an important factor influencing the trust of online consumers. For instance, M. K. Lee and Turban (2001) divides consumers’ trust in online shopping into three types, specifically, the trustworthiness of the internet merchant, trustworthiness of the internet shopping medium and environment factor. Shankar et al. (2002) divides the sources of trust establishment into three categories, namely, features of the website, characteristics of users and other factors. Based on the previous studies, this thesis categorises and summarises the influencing factors of personal trust attitudes related to the company website, including the following four types: website design, service quality of the website, information quality of the website and
website security and privacy control.

2.11.2.1 Website Design

The existing research results illustrate that consumers often decide on a company’s trustworthiness from the appearance of the website. According to the research by Chen and Barnes (2007), the website design may affect consumers’ impressions, and consequently, their trust in the seller. Combined with these studies, the present report suggests that the website design should include the following contents:

1) **Browsing and Decision-making Tools:** The website design should include the basic tools that can help consumers to browse information and make decisions, such as a search engine and site map;

2) **Interactive Contact Mechanism:** Consumers can contact other consumers or the company itself through the interactive contact mechanism to enquire about commodity information, understand purchasing procedures or share consumption experiences. The mechanism consists of the email address, contact telephone number of the company, contact address of the company, network community forum, frequently asked questions and their answers and other contents;

3) **Security and Privacy Notice:** For the privacy and security of consumers, the website should declare or explain the privacy and security measures taken to provide consumers with appropriate guarantees. For example, it can include an Security Socket Layer (SSL) secure transaction mechanism, protection specifications of privacy rights, copyright statements or credit guarantees provided by authoritative institutions;

4) **Description of Company Background:** It refers to the relevant information of the company that operates the website, including the company’s information and development history, as well as explanation of its future prospect and objectives;

5) **Information on Product Introduction:** This refers to the information about product
introduction on the website, including the product’s name and image, relevant product description and mark of the product’s price; and

6) **Information on the Transaction Procedure:** This refers to information about transaction procedures for shopping on the website, including an introduction to the shopping procedure, illustration of delivery process and explanation of the mode and procedure for changing or returning products.

This research puts forward that the above basic contents of website design directly affect consumers’ impression of business websites and influence consumers’ initial sense of trust.

2.11.2.2 **Service Quality of the Website**

In B2C e-commerce, it is usually the company website, not the salesperson or company sales outlet, that comes in direct contact with consumers. Therefore, the relevant quality of the website is an important factor influencing consumer trust (Chiou & Droge, 2006; Crosby et al., 1990; Jun, Kang, & Hyun, 2017). A website with high quality usually adopts advanced and reliable technology, as well as a reasonable and effective management concept and a management model, so that it can facilitate consumers’ completion of transactions, improve consumers’ satisfaction and enhance consumers’ trust in the website.

2.11.2.3 **Information Quality of the Website**

In the B2C e-commerce environment, most consumers make purchasing decisions according to the information provided by websites. Thus, the information quality determines consumers’ trust in websites. If the website can provide abundant information related to consumers’ demands, they can save a lot of search time and costs (Everard & Galletta, 2005; Filieri, 2015; Dan J. Kim et al., 2008; Özpolat et al., 2013).

The information quality of the website proposed in this thesis refers to the timeliness, authenticity and usefulness of the information transmitted by the website (Everard & Galletta, 2005; Dan J. Kim et al., 2008). Timeliness means that the website should
transmit the information required to the consumers clearly, completely and in a timely manner, and similarly, engage in the timely collection of feedback information from consumers to improve its services. Authenticity means that the information provided by the website should be true rather than false. Finally, usefulness means that the information provided by the website should be useful to the users but not redundant or harmful.

2.11.2.4 Website Security and Privacy Control

The research of Warrington, Abgrab, and Caldwell (2000) shows that, after being attracted by the goods or services displayed on the webpage, consumers may seek the relevant information to enhance their confidence in the interaction with the website and ensure the security of personal information and transactions. Shankar et al. (2002) contend that privacy and security are important factors influencing consumer trust. When deciding to transact with the website, the consumers first focus on whether it is safe to conduct online transactions with it; they hope that the company website can provide effective ways of protecting privacy and security while exchanging the online transaction information. This is related to the actions of the website. If the company uses advanced cipher and authentication technologies to ensure that other, unauthorised people are not allowed to enter, thereby prevent a variety of sensitive information from being lost, the consumers will think that it is safe to conduct transactions with the website. Consequently, consumers’ trust attitude will increase.

2.11.3 Influencing Factors Related to Consumers’ Individual Characteristics

Bhattacharya et al. (1998) think that, in addition to the trustee’s characteristics, which can be clearly perceived by the trustor, research on the formation of consumer trust also needs to consider the personal characteristics of the trustor. This is because personal characteristics and consumers’ cognition of networks may affect the establishment of trust. Therefore, this research considers that the transaction experience of consumers and personal propensity to trust will influence the trust attitude to online transactions to different
degrees. Meanwhile, these two variables are also important influencing factors in the dynamic trust relationship, playing a role in the establishment and maintenance of trust.

2.11.3.1 The Online Transaction Experience

The previous literature points out that, in the shopping process, the consumers will be affected by past knowledge, past experiences and other factors, either in the information collection stage or the decision-making stage in purchasing. For example, in a study on consumer behaviour, Ratnasingam (2008) finds that, if people with purchasing experience need to buy the good again in the future, they will collect more relevant commodity information to assist their decision making in purchasing. The empirical research of Childers (1986) also finds that, when the consumers have the experience of buying a specific good many times, their knowledge about the good will accumulate, leading to more personal views and opinions on future purchases of the good; this influences the consumers’ decision-making in future purchasing. From the above studies, we know that an individual’s past purchasing experience does affect his/her personal decision making in the future. Therefore, this research suggests that the past online transaction experience of consumers has an important influence on the increase or decrease of the level of consumers’ trust attitude.

2.11.3.2 Propensity to Trust

Chen and Barnes (2007) think that the propensity to trust refers to a type of propensity to whether other people are trustworthy. That is to say, it is a sustainable propensity for the consumer to be willing to trust other people, as shown by one person under normal circumstances. The propensity to trust is regarded as a stable personality trait and does not change due to different environments. The propensity to trust is mainly affected by a person’s personality characteristics, growing environment and level of education. Koufaris and Hampton-Sosa (2004) claim that the propensity to trust is a stable intrinsic factor, and it will influence the possibility that a person may trust other individuals or organisations. Because consumers generally cannot monitor every detail in most transaction processes,
there must be a certain amount of trust in the transaction process, and the trust level stems from consumer’s initial propensity to trust.

2.11.4 External Influencing Factors Related to the B2C e-Commerce Environment

The external influencing factors of B2C e-commerce will constitute a macro-consumption scene for consumers. These external factors, such as the overall technological level and degree of advancement laws and regulations, will influence the basic trust perception of consumers to a certain extent, and further, affect their trust attitude (Gefen, Benbasat, & Pavlou, 2008; Kiernan et al., 2002; Mangiaracina, Marchet, Perotti, & Tumino, 2015).

2.11.4.1 Technological Environment

The network and communication technologies are the technical basis of the emergence and development of B2C e-commerce. The openness of the internet makes B2C e-commerce vulnerable and increases the risk of the transaction (Ba & Pavlou, 2002). In the e-commerce system, the users’ trust in technical aspects is mainly reflected in the safety of the system, privacy solution, online payment mode, security of bank account passwords in the transaction process, fund security in the transfer process and so on. The higher the reliability of B2C e-commerce technologies is, the lower the environmental risk will be, and the consumers will give more trust in transactions with the website. Consequently, consumers’ trust attitude will increase.

2.11.4.2 National Policy and Legal Environment

The healthy and orderly development of B2C e-commerce is contingent on a complete system of laws and regulations. The more perfect the B2C e-commerce laws and regulations are, the greater the guarantee of benefit the consumer will have and the more easily the consumers will trust the online company (Gefen et al., 2008; Kiernan et al., 2002; Mangiaracina et al., 2015). Formulating the B2C e-commerce laws and regulations can help to restrain the behaviours of the parties participating in the transaction and establish
the transaction trust, especially trust based on the system, to some extent.

2.12 Summarizing Prior Empirical Research on the Consumer’s Online Trust

In the previous sections, major research results in the field of online trust were summarized through the literature review, and relevant factors affecting intentions or behaviours of consumer trust were identified. Relevant literature in recent decades was then summarized in Table 2.1 to clearly show the contributions made by other scholars to this field.

Table 2.1 Empirical Studies on the Determinants of Online Trust

<table>
<thead>
<tr>
<th>Study</th>
<th>Statistically Significant Determinants of Online Trust</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Ba &amp; Pavlou, 2002)</td>
<td>Appropriate feedback mechanisms can induce calculus-based credibility trust without repeated interactions between two transacting parties.</td>
</tr>
<tr>
<td>(Banerjee, Bhattacharyya, &amp; Bose, 2017)</td>
<td>This paper pointed out that reviewers’ perceived trustworthiness influences reviews’ acceptance rates and consequently has an indirect impact on sales.</td>
</tr>
<tr>
<td>(Belanger, Hiller, &amp; Smith, 2002)</td>
<td>The results indicate that consumers value security features significantly more than they value the three other trust indices (third-party privacy seals, privacy statements, and third-party security seals).</td>
</tr>
<tr>
<td>(Beldad et al., 2012)</td>
<td>This paper pointed out that a company’s confidence in its online privacy statements significantly influences Dutch internet users’ trust in government organisations.</td>
</tr>
<tr>
<td>(Bhattacherjee, 2002)</td>
<td>This paper pointed out that a trustee’s ability, benevolence, and</td>
</tr>
<tr>
<td>Source</td>
<td>Text</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
</tr>
<tr>
<td>(C. Liu, Marchewka, Lu, &amp; Yu, 2004)</td>
<td>This study proposed and tested a theoretical model that considers an individual’s perceptions of privacy dimensions regarding their notice, access, choice, and security.</td>
</tr>
<tr>
<td>(Q. Cao, Duan, &amp; Gan, 2011)</td>
<td>The results demonstrate that the semantic characteristics are more influential than other characteristics in affecting how many helpful votes reviews receive.</td>
</tr>
<tr>
<td>(Chen &amp; Barnes, 2007)</td>
<td>This study found that perceived usefulness, perceived security, perceived privacy, a perceived positive reputation, and the willingness to customise are important antecedents to online initial trust.</td>
</tr>
<tr>
<td>(Chevalier &amp; Mayzlin, 2018)</td>
<td>This study found that an improvement in a book’s reviews leads to an increase in relative sales at the site on which the book is promoted.</td>
</tr>
<tr>
<td>(D. P. Cook &amp; Wenhong, 2003)</td>
<td>This study examined the role of the third-party seal in building trust between vendors and consumers.</td>
</tr>
<tr>
<td>(G. Cui et al., 2014)</td>
<td>This paper demonstrated that the volume of reviews for what has a significant effect on new product sales in the early period of what and that such an effect decreases over time.</td>
</tr>
<tr>
<td>(D. Harrison McKnight et al., 2002)</td>
<td>A website’s quality and reputation are powerful levers that vendors can utilise to build consumer trust.</td>
</tr>
<tr>
<td>(McKnight, Kacmar, &amp; Choudhury, 2004)</td>
<td>The study found that structural assurance had a significant effect on consumer trust in a web business in both the exploratory and introductory stages.</td>
</tr>
<tr>
<td>Source</td>
<td>Summary</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>(Dan J Kim et al., 2009)</td>
<td>The results indicate firstly that trust directly and indirectly affects a consumer’s purchase decision in combination with perceived risk and perceived benefit and secondly that trust has a longer-term impact on consumer e-loyalty through satisfaction.</td>
</tr>
<tr>
<td>(Dey et al., 2009)</td>
<td>The results analysis indicates that challenges in building trust for a business-to-consumer (B2C) e-commerce venture (local/international) is the major concern.</td>
</tr>
<tr>
<td>(Duan, Gu, &amp; Whinston, 2008)</td>
<td>This paper pointed out that the word-of-mouth (WOM) effect is the presence of a positive feedback mechanism between WOM and retail sales.</td>
</tr>
<tr>
<td>(E. Kim &amp; Tadisina, 2005)</td>
<td>The results indicate that website quality has the most significant impact on customers’ initial trust in e-businesses.</td>
</tr>
<tr>
<td>(Everard &amp; Galletta, 2005)</td>
<td>This study determined that the perceived quality of an online store’s website would be directly related to users’ trust in the store.</td>
</tr>
<tr>
<td>(B. Fang, Ye, Kucukusta, &amp; Law, 2016)</td>
<td>The empirical analysis results indicate that both text readability and reviewer characteristics affect reviews’ perceived value.</td>
</tr>
<tr>
<td>(Filieri, 2015)</td>
<td>The paper asserted that consumers are increasingly employing online consumer reviews (OCRs) to learn about product quality. The findings suggest that consumers are primarily influenced by information’s quality.</td>
</tr>
<tr>
<td>(Ganguly, Dash, &amp; Cyr, 2009)</td>
<td>This paper proposed a model and provided empirical evidence for website characteristics’ impact on Indian online user’s trust in online transactions.</td>
</tr>
<tr>
<td>Reference</td>
<td>Summary</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
</tr>
<tr>
<td>(Ganguly et al., 2010)</td>
<td>This paper demonstrated that website design is able to positively influence consumers’ purchase intention and reduce perceived risk.</td>
</tr>
<tr>
<td>(Gefen, 2000)</td>
<td>This paper revealed that both familiarity with an internet vendor and its processes as well as trust in the vendor influenced the respondents’ intentions to inquire about books.</td>
</tr>
<tr>
<td>(Gefen, 2002)</td>
<td>This study found that a customer’s loyalty to a specific online vendor increases with a perceived increase in website service quality both directly and through increased trust.</td>
</tr>
<tr>
<td>(Gefen, Karahanna, &amp; Straub, 2003a)</td>
<td>This study determined that repeat customers trusted the e-vendor more, perceived the website to be more useful and easier to use, and were more inclined to purchase from it than were non-repeat customers.</td>
</tr>
<tr>
<td>(H. Hong et al., 2017)</td>
<td>This paper revealed that online consumer reviews can help customers reduce the uncertainty and risks they face in online shopping.</td>
</tr>
<tr>
<td>(H.-W. Kim et al., 2004)</td>
<td>This study found that customer satisfaction has a stronger effect on trust building for repeat customers than do other antecedents.</td>
</tr>
<tr>
<td>(Harris &amp; Goode, 2004)</td>
<td>This paper contended that there exists a positive and direct relationship between service quality and trust.</td>
</tr>
<tr>
<td>(Hongyoun Hahn &amp; Kim, 2009)</td>
<td>This paper showed that consumer trust in an online retailer is a significant predictor of perceived internet use.</td>
</tr>
<tr>
<td>(Ilyoo B Hong, 2015)</td>
<td>The results indicate that a consumer’s trust expectation in an online merchant is a predictor of the consumer’s choice between an e-</td>
</tr>
<tr>
<td>(Ilyoo B. Hong &amp; Cho, 2011)</td>
<td>The results reveal that consumer trust in an intermediary has a strong influence upon both one’s attitudinal loyalty and one’s purchase intentions.</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>(J. Zhang, Liu, Sayogo, Picazo-Vela, &amp; Luna-Reyes, 2016)</td>
<td>The results suggest that information that indicates brands’ and certificates’ reputations are important factors that encourage the development of trust.</td>
</tr>
<tr>
<td>(Jun et al., 2017)</td>
<td>This paper showed that third-party certification facilitates patrons’ positive evaluation of food and service quality. This positive evaluation additionally fosters trust in a restaurant.</td>
</tr>
<tr>
<td>(K. M. Kimery &amp; McCord, 2002)</td>
<td>The initial results did not support the postulating relationships between assurance seals and consumer trust in e-retailers.</td>
</tr>
<tr>
<td>(Kathryn M Kimery &amp; McCord, 2006)</td>
<td>This paper suggested that third-party assurance seals may not fulfil their potential to influence consumer trust in e-commerce because the signals are neither noticed on merchant websites nor adequately understood by consumers.</td>
</tr>
<tr>
<td>(Koh &amp; Kim, 2003)</td>
<td>This study determined that the sense of the virtual community is affected by the community leader’s enthusiasm, offline activities available to members, and enjoyability.</td>
</tr>
<tr>
<td>(Korfiatis et al., 2012)</td>
<td>This paper found that review readability has a greater effect on a review’s helpfulness ratio than its length.</td>
</tr>
<tr>
<td>(Koufaris &amp; Hampton-Sosa, 2004)</td>
<td>The results indicate that perceived company reputation and a company’s willingness to customise products and services can</td>
</tr>
</tbody>
</table>
significantly affect initial trust.

(Kusumasondjaja et al., 2012)  
This study indicated that a negative online review is deemed more credible than a positive online review, while a positive online review leads to greater initial trust than does a negative review.

(T. Lee, 2005)  
This paper presented information on the impact of consumers’ perceptions of interactivity in m-commerce.

(Monsuwé, Dellaert, & de Ruyter, 2004)  
This paper explained that consumers’ attitudes towards online shopping and intention to shop online are affected not only by ease of use, usefulness, and enjoyment, but also by exogenous factors, such as consumers’ traits.

(Mudambi & Schuff, 2010)  
This study demonstrated that product type moderates the effect of review extremity on the review’s helpfulness.

(N. Hu et al., 2012)  
This study discovered that around 10.3% of the products listed online are subject to the manipulation of online reviews.

(N. Hu et al., 2008)  
This study pointed out that consumers pay attention to review scores as well as other contextual information, such as a reviewer’s reputation and exposure.

(Palmer, Bailey, & Faraj, 2000)  
This paper investigated how firms promote trust by exploring the use and prominence of trusted third parties (TTPs) and privacy statements (PSs).

(Pan & Zhang, 2011)  
This study found that a curvilinear relationship exists between expressed reviewer innovativeness and review helpfulness.
<table>
<thead>
<tr>
<th>Reference</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Pavlou &amp; Gefen, 2004)</td>
<td>The three IT-enabled institutional mechanisms’ perceived effectiveness—specifically feedback mechanisms, third-party escrow services, and credit card guarantees—engender buyer trust within the community of online auction sellers.</td>
</tr>
<tr>
<td>(Pavlou, 2002)</td>
<td>This paper delineated the relationship between institution-based trust and interorganisational trust.</td>
</tr>
<tr>
<td>(Pennington, Wilcox, &amp; Grover, 2003)</td>
<td>The results suggest that the single trust mechanism of vendor guarantees has a direct influence on system trust.</td>
</tr>
<tr>
<td>(Ridings, Gefen, &amp; Arinze, 2002)</td>
<td>This study showed that trust has a downstream effect on members’ intentions to both give information and acquire information through the virtual community.</td>
</tr>
<tr>
<td>(Roy, Dewit, &amp; Aubert, 2001)</td>
<td>This paper suggested that the quality of the user’s website interface is a determinant of the initial establishment of trust.</td>
</tr>
<tr>
<td>(Sirkka L Jarvenpaa, Tractinsky, &amp; Saarinen, 1999)</td>
<td>This paper determined that heritage culture affects the antecedents of consumer trust.</td>
</tr>
<tr>
<td>(Sirkka L. Jarvenpaa, Tractinsky, &amp; Vitale, 2000)</td>
<td>This paper demonstrated that consumers recognise differences in size and reputation among internet stores, and those differences influence their assessments of store trustworthiness and their perceptions of risk.</td>
</tr>
<tr>
<td>(Sparks &amp; Browning, 2011)</td>
<td>The results suggested that consumers tend to rely on easy-to-process information when evaluating a hotel based on reviews.</td>
</tr>
<tr>
<td>(Suh &amp; Han, 2003)</td>
<td>This paper pointed out that privacy protection and data integrity</td>
</tr>
<tr>
<td>Reference</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>(Urban et al., 2009)</td>
<td>This paper asserted that online trust extends beyond privacy and security, is closely connected to website design, is heterogeneous across individuals and products, and that its formation is an ongoing process.</td>
</tr>
<tr>
<td>(Utz et al., 2012)</td>
<td>This study pointed out that dispositional trust moderates the effects of reviews and assurance seals.</td>
</tr>
<tr>
<td>(Wakefield et al., 2004)</td>
<td>This paper determined that communication, opportunism, product brand equity, and website attractiveness are important predictors of one’s initial trust in an e-retailer.</td>
</tr>
<tr>
<td>(Walczuch &amp; Lundgren, 2004)</td>
<td>This study revealed that the potential psychological antecedents can be categorised into five groups of factors: (1) personality-based, (2) perception-based, (3) attitude-based, (4) experience-based, and (5) knowledge-based.</td>
</tr>
<tr>
<td>(Y. D. Wang &amp; Emurian, 2005)</td>
<td>This paper proposed a framework for a trust-inducing interface design. The design features were classified into four dimensions: (1) graphic design, (2) structure design, (3) content design, and (4) social-cue design.</td>
</tr>
<tr>
<td>(X. Hu, Wu, Wu, &amp; Zhang, 2010)</td>
<td>This study examined the effects of third-party web assurance seals on consumers’ initial trust in online vendors from a functional perspective.</td>
</tr>
<tr>
<td>(Xiao, 2010)</td>
<td>This paper found that the online third-party guaranteed service significantly affects the promotion of consumer trust.</td>
</tr>
</tbody>
</table>
Despite extensive discussions on the factors affecting online trust of consumers, scholars still face challenges. For example, Table 2.1 shows research results on the factors affecting online trust in the past two decades. One problem is scholars tend to focus on only one or several types of influencing factors but ignore the interaction between different factors; another problem is they only introduce the factors affecting online trust of consumers but rarely explain the mechanism. In view of this, the main research results and academic contributions of scholars are summarized in the following section, and some

<table>
<thead>
<tr>
<th>Reference</th>
<th>Research Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Xu, 2014)</td>
<td>This paper determined that reputation influences both affective and cognitive dimensions of trust.</td>
</tr>
<tr>
<td>(Yang et al., 2015)</td>
<td>The results asserted that, in the current stage of China’s online payment process or options, consumers have established trust as a first antecedent of their perceived risks.</td>
</tr>
<tr>
<td>(Ye et al., 2011)</td>
<td>The empirical findings demonstrated that traveller reviews have a significant impact on online sales, with a 10% increase in traveller review ratings boosting online bookings by more than 5%.</td>
</tr>
<tr>
<td>(Z. Liu &amp; Park, 2015)</td>
<td>The results revealed that a combination of the messenger him/herself and the message’s characteristics positively affect reviews’ perceived usefulness.</td>
</tr>
<tr>
<td>(Z. Zhang et al., 2010)</td>
<td>This study demonstrated that consumer-generated ratings for a restaurant’s food quality, environment, and service as well as the volume of online consumer reviews are positively associated with a restaurant’s online popularity.</td>
</tr>
<tr>
<td>(F. Zhu &amp; Zhang, 2010)</td>
<td>This paper indicated that online reviews are more influential for less popular games and games whose players have greater internet experience.</td>
</tr>
</tbody>
</table>
critical thinking on the research in this field is elaborated.

2.13 Critical Thinking

Through continuous exploration and research, researchers have achieved plenty of research results in the field of consumer trust in online shopping. This has concentrated on the topics described below.

2.13.1 Successfully Separating Online Consumer Trust from Research on Consumer Trust in Traditional Transactions

In the early development stage of online shopping, the researchers still limited their understanding of online trust to the traditional notion of trust; they regarded the role of trust in e-commerce as the key and elaborated on it. They gave no definition of trust in online transactions, but instead, followed the traditional definition of trust. In the last 10 years, specialised research on the definition of trust in online transactions began to appear. Corritore et al. (2003) define all the online trust objects, including internal online technologies, interaction experience between the users and website and individuals who maintain the website, and so on as the general website. Grabner-Kräuter and Kaluscha (2003) do not directly define online trust, but they subdivided the risk state of online trust and point out that there are two main risks in online transactions, namely, the uncertainty of system dependence and uncertainty related to the transactions. The former includes identity confirmation, information identification and quality evaluation; the later mainly refers to potential technical errors on the internet or technical risks that are hard for the two parties of the transaction to avoid. Meanwhile, the research on the models of online trust and influencing factors have gradually been deepened and achieved systematisation. Many researchers have established the new models based on the original theories or research results, and some have begun to turn to the research on the dynamic trust model. For instance, Fisher and Zoe Chu (2009) summarise the factors influencing online trust in terms of four elements, namely, the characteristics of the consumer, characteristics of
the enterprise, structure of the website and interactivity. X. Hu et al. (2010) subdivide the systematic factors of trust and put forward three factors, specifically, the third-party seal, privacy protection and safety protection.

2.13.2 Exploration of the Evolution Process and Formation Mechanism of Online Consumer Trust

Currently, studies on the formation of online consumer trust mainly focus on two elements—on the one hand, examining and validating various variables influencing the formation of trust under different research backgrounds (H.-W. Kim et al., 2004; M. K. Lee & Turban, 2001; Nor & Pearson, 1970; Pavlou & Gefen, 2004; X. Zhang & Zhang, 2005), and on the other, discussing the trust building mechanism from the theoretical perspective (D. H. McKnight & N. L. Chervany, 2001; McKnight et al., 1998; McKnight et al., 2004). M. K. Lee and Turban (2001) suggest that active intention, ethics, environmental factors and social attributes can have an important influence on the consumer trust. Lander, Purvis, McCray, and Leigh (2004) propose that, in the evolution process of forming customers’ trust, their trust propensity personality, level of cognition, emotion and the kindness, honesty, ability and foreseeability of the trustee are important factors forming customers’ trust.

2.13.3 Further Detail and Improvement of Influencing Variables and Measures of Online Consumer Trust

In the research on online trust, the characteristics of the trustee are generally defined as the website characteristics (Beldad et al., 2010; Eastlick, Lotz, & Warrington, 2006; Ganguly et al., 2009). Sultan, Urban, Shankar, and Bart (2003) suggest that the website characteristics include nine features, including the browsing mode, suggestion mechanism, brand and webpage. Shankar et al. (2002) divide them into 14 dimensions, such as the suggestion mechanism, performance ability, privacy and third-party certifications and secure transaction policy. In the research on individual characteristics and online trust,
Shankar et al. (2002) propose that consumers’ online consumption experience, online sharing experience, long-term perception of the network and preference for new technology will influence online trust building. The research in this field also has some problems that need to be addressed and improved, as described below.

2.13.4 The Influential Factors that Form the Trust of Online Consumers Are Still Incomplete

From the literature that has been collected, although researchers have conducted considerable studies on the factors influencing the trust of online consumers, the focus of the studies is usually on discussing the influences of the factors on trust in terms of a category of factors, or even a single factor, such as website reputation, website service, ability of the website operator and personal trust tendency. Most of the researchers focus on the trustee—the seller—but neglect the consumer, who initiates the transaction. Therefore, the trust model of online consumers has not been constructed symmetrically and completely in the current research, and many important components have not been incorporated into the research framework, which restricts further research in this field.

2.13.5 The Mechanism of Action Included in Various Factors Influencing the Trust of Online Consumers Needs to Be Explored

The existing studies have fully demonstrated that many factors, such as website reputation, payment mechanism, personal trust tendency, quality of services and online environment affect the trust of online consumers. However, in the literature, many researchers are content to list these factors, and thus, the exploration of deeper reasons behind them factors needs to be strengthened. Questions to be posed are as follows: Why is a certain factor influential while another one is not? What internal mechanism and pathway does the factor use to exert its influence? Do the different forms or different qualities showed by the same factor have different effects on the establishment of trust? Does personal experience influence other factors in terms of trust? Do different factors interact?
Taking TTPs as an example, related studies have pointed out that privacy certification can effectively reduce consumers’ perception of the risk of improper use of information (Benassi, 1999; Head & Hassanein, 2002; Özpoltat et al., 2013). Meanwhile, a security certification can significantly enhance consumer trust in online transactions and payment (X. Hu et al., 2010). Researchers further indicate that the privacy and security certifications provided by TTPs influence consumers’ trusting intentions by showing trustworthy information about e-commerce enterprises to consumers (Benassi, 1999). Although these studies reveal that TTPs can significantly influence consumer trusting behaviour, the mechanism of influence is seldom studied. In addition, researchers rarely pay attention to the influencing factors of the trust transfer effects of TTPs. Moreover, TTP services are often limited to security and privacy certifications. In fact, TTPs have more functions, such as recommendation, guarantee and certification services. Therefore, the current research lacks an understanding of the TTP service framework.

Taking online reviews as an example, many empirical studies indicate that online reviews can significantly influence consumers’ trusting intentions and shopping decisions (N. Hu et al., 2008; S. S. Li & Karahanna, 2015; Z. Liu & Park, 2015; Mudambi & Schuff, 2010). However, with the development of information technology and the internet, online reviews are available to consumers from a single channel to multi-layer, multiple channels and diversified forms. Although researchers have analysed the influence of online reviews on consumer behaviours, comparative research is rarely conducted on the influence of online reviews from different channels on consumer trust. Further, researchers indicate that the information quality of online reviews perceived by consumers plays an important role in regulating consumer trust (Banerjee et al., 2017; H. Hong et al., 2017; Mudambi & Schuff, 2010). The meaning of information quality has been explained to a certain extent, and it has been shown that online reviews of different qualities have different influences on trusting intentions. However, the related literature seldom elaborates on the influencing factors of online review quality perceived by consumers, nor does it comprehensively consider the regulating effects of these different influencing factors on consumer trusting behaviours.
Because of the importance of trust, many studies have been conducted and many theories have been proposed that lay the foundation for the study of online trust. Especially in empirical studies of e-commerce trust, these theories are often the cornerstones used to establish research frameworks and models. Specifically, the research on trust in e-commerce mainly relates to theories in the fields of social psychology, information technology, economics and sociology, as well as other disciplines. Through a summary of previous research results, we extracted some popular theories for analysis and comparison, mainly including the Theory of Planned Behavior (TPB), the Signalling Theory, the Institutional Theory, the Social Influence Theory (SIT) and the Technology Acceptance Model (TAM).

In this chapter, these theories are briefly described; moreover, how they solve problems related to the online trust is explained. Finally, the theories adopted in this research study are clarified and an explanation of the theoretical basis is provided. This chapter also indicates the research method and the proposed data analysis approaches used for this research study.

3.1 Theoretical Foundation

A theory provides an explanation of a natural or social behaviour, event or phenomenon (Savin-Baden & Major, 2013). There are many advantages to applying theories in a research study. First, a theory may provide potential logical reasoning for the occurrence of a natural or social phenomenon. It can be used to explain the main drivers and key outcomes, as well as the potential process driving the target phenomenon (Gregor, 2002; Shankar et al., 2002). Second, a theory provides guidance for future research by defining constructs and relationships (Lim, Saldanha, Malladi, & Melville, 2009; Mukherjee & Nath, 2007).
Through the analysis and summary of relevant literature in the field of online trust research presented in the previous chapter, theories such as TPB, Signalling Theory, Institutional Theory, SIT and TAM, are, generally, applied to investigate the influencing factor of trust.

### 3.1.1 Theory of Planned Behavior

TPB is a theory that explains the general decision process of individual behaviour from the perspective of information processing using expectancy value theory as the starting point. The theoretical source of TPB can be traced back to the Theory of Multiattribute Attitude (Fishbein, 1963). TPB holds that the attitude towards the behaviour determines the behaviour intention and the expected behaviour result, and the result assessment determines the attitude towards the behaviour. Later, Fishbein and Ajzen (1977) further developed the Theory of Multiattribute Attitude and proposed the Theory of Reasoned Action (TRA). TRA holds that behavioural intention is a directly determines the behaviour, and the behavioural intention is affected by the attitude towards the behaviour and the subject norm. TRA assumes that an individual’s behaviour is controlled by will, which seriously restricts the broad application of the theory. Therefore, to broaden the application scope of TRA, Ajzen (1985) added the variable of the perceived behaviour control on the basis of TRA and put forward the preliminarily TPB. The article, “The Theory of Planned Behavior”, published by Ajzen (1991) symbolised the maturity of TPB. The structure model used to represent TPB is presented in Figure 3.1.
According to TPB, other influencing factors of behaviour can indirectly influence behaviour only by affecting attitude, subjective norm and perceived behavioural control. In terms of e-commerce trust, this theory can be utilised to study the influencing factors of consumer behaviour, enhance consumer trust by improving those behaviours and drive the potential for a consumer to actually engage in purchase behaviour.

### 3.1.2 Signalling Theory

Signalling Theory was first proposed by Spence (1973). This theory was developed on the premise of information asymmetry, but it is still possible to obtain results from a potential transaction by sending positive external signals.

When the online transaction market is not yet mature, and there are serious information asymmetries between counterparties, it is very important to consider how to make full use of Signalling Theory. Enterprises can pass along positive signals to consumers by displaying privacy and safety certifications, high-quality positive reviews and the awards they have won. Companies can deliver positive signals to consumers by demonstrating privacy and enhancing consumer trust, thereby increasing potential transactions.
3.1.3 **Institutional Theory**

Institutional Theory proposes that speculations are common in when parties cooperate, thus, hindering synergy (Scott, 1987; Selznick, 1948). To prevent speculation, restrictions must be imposed in a world of interaction so that behaviour can be regulated and uncertainty can be reduced to facilitate the formation of reasonable expectations in transactions.

For e-commerce trust research, Institutional Theory can be used to regulate online transaction behaviour. Through laws and regulations, as well as third-party certification, consumers feel that transactions are safer and more reasonable; thus, they have more trust in enterprises and in the online environment.

3.1.4 **Social Influence Theory**

SIT addresses the influence of individual behaviour by groups (Kelman, 1958). Social influence means the intentional or unintentional influence one party has over another party due to the relationship between them. According to the social psychologist, Asch (1956), conformity, compliance and obedience are three types of social influence.

SIT can be applied to examine the influence of recommendation and reputation on consumer trust, especially when a consumer is significantly influenced by other members in a particular group to which he or she belongs. Therefore, establishing an online community can be an effective way for enterprises to enhance consumer trust.

3.1.5 **Technology Acceptance Model**

TAM is an important theoretical model in the research field of information management and information systems. It was proposed by Davis (1989) and it applies TRA to the study of user acceptance of information systems (Figure 3.2). The model consists of two main factors: perceived usefulness, which means the degree to which a person believes that
using a system would enhance his or her job performance, and perceived ease of use, which means the degree to which a person believes that using a particular system would be free from effort.

Figure 3.2 Technology Acceptance Model (Davis, 1989).

Many empirical researchers have used TAM, and it has developed into a robust and concise model. In the e-commerce area, researchers often combine TAM with trust to examine the motives of consumer behaviour.

3.1.6 Summary of the Theories

Through the horizontal comparison of the theories mentioned above, it was decided to underpin the present study’s model by building on TPB and Institutional Theory. The reasons for this are explained below.

First, this research study aimed to propose a comprehensive trust model, and it is anticipated that the model can fully embrace the influencing factors of consumers’ trust. Through analysis of the TAM, this model has the potential to provide a significant advantage for measuring consumers’ trust and acceptance of a website, but it is not suitable for investigating the influence of recommendation and reputation on consumers’ trust. In contrast, SIT is mainly used to examine the influence of other people on individual behaviours, so it is better applied to studying the influence of word of mouth and comments on consumers’ trust behaviours. Signalling Theory was developed on the premise of information asymmetry. Merchants transmit signals to consumers to boost their trust. According to that theory, merchants may take some measures to transmit signals to consumers, such as TTP certification, privacy protection and third-party payment, thus enhancing
their trust and confidence in shopping. But this theory also has some deficiencies. For example, when consumers build a relatively stable relationship with merchants, or the cost performance ratio tends to be stable, then consumers’ preferences influence their decision making and Signalling Theory is not applicable. While these three theories can underpin the analysis of specific influencing factors of trust, they are insufficient for application in a comprehensive trust model.

Second, based on the investigation and analysis of consumer trust and the purchasing decision-making process, this study considers them to be embodiments of consumers’ conscious behaviours. TPB originated from the field of social psychology; it is, primarily, used to study the determinants of the motives of conscious behaviours, so as to explain human behaviours. TPB shows good adaptability to the behavioural research in different fields, and it can provide a good explanation for and prediction of human behaviours. Accordingly, when investigating consumer trust in e-commerce, this theory can be utilised to study the influencing factors of consumers’ trust and enhance trust by improving these factors, thus promoting the actual buying behaviours of potential consumers.

Lastly, the basic premise for the present research study is that the majority of consumers are rational individuals, so the motives that drive their behaviours are the best approach for evaluating their behaviours when they have the time to consider the trust behaviours that are executed. Actually, consumers’ control of their behaviours is usually influenced by many factors, such as time, money, information and ability. The structural assurance of Institutional Theory and the perceived behaviour control of TPB can be organically integrated. Due to the regulation of e-commerce by Institutional Theory, consumers may perceive that the transaction is safer and more reliable in a trustworthy institution (such as third-party certification, laws and regulations), thereby enhancing their trust in enterprises and the online shopping environment.

Based on the three reasons presented above, this research study is based on the premise that integrating TPB and Institutional Theory to build a trust model can effectively explain consumers’ behaviours and increase the accuracy of the prediction of those behaviours.
Furthermore, consumers’ attitudes and opinion will influence the motive that drives their behaviours, which can also indicate the actual actions. Moreover, the structural assurance of Institutional Theory may enhance consumers’ perception control, thereby influencing their behaviours.

3.2 Research Design

In the previous section, different theories were introduced and compared, and the theoretical underpinnings and reasons for applying those theories were clarified. Subsequent sections of this chapter will focus on the research design adopted in this study and the proposed data analysis methods that were used.

3.2.1 Research Methodology

The existing literature abounds with studies on factors affecting online consumer trust, but the results still have some limitations. First, existing research focuses on the effects that one type or several types of factors have on consumers’ behavioural intention, without using an integrated model to comprehensively evaluate and measure the level of consumer trust. Second, existing research only identifies the factors affecting consumers’ trust behaviour; it ignores the mechanisms of these factors. While the effects of different factors on consumer behaviour or intention are enumerated, previous studies do not explain how these effects are internally produced or how they are specifically exerted. Third, existing research lacks an integrated trust model to effectively measure and evaluate the specific impacts of different factors on consumers’ behavioural decision-making under a unified framework, thus failing to provide an accurate reference point for the industrial community.

In view of these limitation, the core goal of this thesis is to build an integrated trust model and, on this basis, explore the specific impacts of different types of factors on consumer behaviour. Previous chapters clarified the rationale for using TPB in the thesis and classified the factors affecting the consumers’ behavioural intention into three types: online
reviews, TTP and personal attitude. Of these three factors, personal attitude has been repeatedly verified in previous literature with fruitful results; thus, it will not be the focus of research in the thesis. Therefore, the present research is will include the following steps:

- The first step is to build an integrated trust model and conduct empirical research to verify the effects of different types of factors on consumer behaviour.
- The second step is to probe deeply into the specific impacts of online reviews and TTP on consumer behaviour and the underlying mechanisms.

To identify the impact of online reviews on consumer behaviour, two independent experiments were proposed to understand how channels and quality shape consumer perceptions of online reviews, given that online reviews have channel and quality differences in the communication process. It also seems necessary to conduct further research on this phenomenon due to the widespread use of social media services today. Thus, a third experiment was designed to explore how consumers judge and identify useful reviews in the SNS environment.

To determine the mechanism of TTP in the process of trust building, two independent experiments were designed based on the different service types and trust transitivity of TTP. The former explores strategies for consumers choosing different TTP service types in a business-to-consumer (B2C) environment. The latter investigates specific ways that transitivity occurs in TTP and further identifies the factors that regulate the transitive effect.

In summary, the thesis consists of six independent empirical studies, with the latter five studies extending the first study in order to understand the specific mechanisms of online reviews and TTP in the integrated trust model and the specific impacts of the two factors on consumer behaviour.

The participants in the six empirical studies were mainly college students who were randomly selected on a voluntary and unpaid basis. The data collection was completed with their knowledge and consent. The participants were fully informed of the purpose of
research, and they had the right to withdraw from participating at any time. The six empirical studies were anonymously conducted to prevent the participants from worrying about personal privacy leaks; all data were stored in an encrypted form on a designated computer.

The research process is shown in Figure 3.3. The research methodologies mainly include a questionnaire study and a laboratory experiment. The former is used to explore the factors that influence consumer trusting intentions; the latter is used to further analyse the regulatory effects of different factors on trusting intentions in a controlled environment.

![Figure 3.3 The Research Process](image)

3.3 Questionnaire Study

The previous sections described in detail the ideas governing the research design, and they elaborated on the specific design plan and the inter-relationship among the six empirical studies. In terms of research method, the six studies can be divided into a questionnaire study and a laboratory experiment. The following sections will explain how these two research methods were conducted in actual practice. In addition, the design,
statistical description and analysis for each of the empirical studies will be explained in subsequent chapters (Chapter 4 to Chapter 9).

### 3.3.1 Research Procedure

Four of the six empirical studies (studies 1, 2, 4 and 5) used a questionnaire to collect data. These four empirical studies were conducted between 2016 and 2017 on a university campus. All participants were recruited through convenience sampling. They agreed to participate in the study on a voluntary and unpaid basis. Although the four empirical studies deal with different issues, they all adhered to the following procedures:

**The first step: Defining the research question**

The main objective of this thesis is to construct and integrate a trust model. On the basis of that, it will demonstrate how different types of factors influence consumer behaviour. Therefore, apart from following the above-mentioned research design rules, each empirical study was designed to answer specific research questions based on its own characteristics and the objects used in the experiments.

**The second step: Developing a research framework**

A research framework was developed for each empirical study, which included a theoretical foundation, a research pattern and a research hypothesis.

**The third step: Creating a research plan**

Specific methods that were suitable for each study were identified and applied; the data collection method was chosen, the questionnaire was designed and plans for the statistical analysis were made.

**The fourth step: Collecting the data**

Based on the research plan, participants were recruited for each of the studies separately through convenience sampling. On a voluntary and unpaid basis, the data was collected.
from the participants, anonymously.

**The fifth step: Analysing the data**

The collected data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM), and the related research model and hypothesis were verified.

### 3.3.2 Questionnaire Design

The questionnaires used for the research studies referred to a maturity scale, whose reliability and validity have been tested and verified in many of the studies in the current body of literature. Also, each of the four empirical studies use a different questionnaire based on its own characteristics and the objects used in the experiments. The questionnaires were adjusted properly to meet the actual requirements and practical scenarios of each research study. Apart from the basic information about the respondents, the remaining questions were all measured using a 7-point Likert scale. The participants were asked to rate their level of agreement from 1 to 7, with 1 representing strong disagreement and 7 representing complete agreement. A pre-test was conducted, and the questionnaire was amended according to the respondents’ feedback before the final version was created and disseminated.

The specific process used to design the questionnaires was based on the following steps:

1. **Literature review.** A variable measurement scale was identified after conducting a literature review of studies relevant to online trust research that had been published in the previous 10 years. On that basis, and combined with the objectives and model of the current research, the measuring scales were filtered and their validity or their relatively mature was verified. Then, a preliminary version of the scale used in the present study was complied.

2. **Expert interviews.** After interviewing experts, the measurement scale was revised.

3. **Consumer interviews.** Interviewing consumers before conducting the research,
enabled further revision of the scale, to ensure that it more accurately reflected the actual situation of consumers, and to make it more easily understood by consumers.

4. **Final compilation of the scale.** The final questionnaire was compiled and used to accomplish the above-mentioned work, which was to create the proposed scale.

The following experts were interviewed: Associate Professor Jun Yan and Assistant Professor Mengxiang Li. While these two people are the researcher’s doctoral supervisors, they have made great achievements in the study of information systems, especially in the field of e-commerce. In particular, Assistant Professor Li’s experience researching consumer behaviour was very beneficial in designing the questionnaire and improving the content validity of various constructs.

### 3.3.3 Data Sampling

The participants were recruited from a group of university students through convenience sampling. Information, including their online trust behaviour, was collected using the online survey platform, Qualtrics.com. Although the four empirical research studies included in this thesis are independent of each other, they all adopt the following data-sampling method.

1. In the period of data collecting, the researchers waited at the gate of the campus every day between 9 am and 11 am and 2 pm and 5 pm, inviting passers-by to complete the questionnaires. The participants could scan through the introduction of the research on the iPad provided to them. After obtaining their consent, they were asked to answer the questions on Qualtrics.com.

2. Introductory information related to the empirical studies was posted on the bulletin board of the teaching building; that information invited students to visit Qualtrics.com and complete the questionnaire so the researchers could collect the data necessary for the research study.
3. Leaflets containing the online website address for the questionnaire were also distributed to students who were willing to participate, and they were invited to take part in the online research on Qualtrics.com.

An overview of the purpose and procedure of the research, as well as information related to ethics, was posted on the web page of each of the empirical research studies. If the participants agreed to answer the questions on an unpaid basis, they could click on the button to move onto the next step. Of course, the names of the participants were not revealed, and they could withdraw from the study whenever they wanted to.

As previously noted, the participants for this study were chosen using convenience sampling. This approach costs less and it is less time-consuming than other methods; it also makes it possible to easily access the targeted participants and it increases their willingness to participate. However, this approach has some limitations. The greatest limitation is sample selection bias, namely, the conclusion drawn from the sample analysis cannot be extended to the entire social group. Because the data were collected on a university campus, the age and education of the respondents fell within a certain range. Therefore, the results of this research might not be applicable to a broader population even though the data distribution matches the general feature of online shoppers: people who shop online are between the ages of 25 and 44; moreover, the better educated they are, the more likely they are to engage in online shopping. Therefore, although the findings of this thesis cannot account for the trust behaviour of all online shoppers, the results can explain most of the decisions they make in the context of e-commerce.

3.3.4 Data Preparation

When data have been obtained, we should first evaluate their reliability, and identify and eliminate invalid questionnaires. It’s easy to identify and get rid of an unfinished questionnaire. However, some seemingly completed questionnaires may have problems and need further identification. The research abides by the following rules in eliminating ineffective questionnaires:
a) The answers given are unitary. For example, all answers were A or divided between A and B.

b) The time spent on filling out the questionnaire is too short. If the participants did not spend enough time answering the questions, it is very likely that they did not read through the questions carefully, which may pose a threat to data reliability. Therefore, the following rule was followed: if the participant spent time equal to less than one-sixth of the total time needed to finish all the questions (each question takes 1 minute), his/her questionnaire was considered invalid. For example, if there are 60 questions in total, and the participant spends less than 10 minutes in responding, his questionnaire will be counted as invalid.

3.4 Laboratory Experiment

A laboratory experiment is the other research method applied in this study, and also the third and sixth empirical research studies used in this thesis. The third empirical research study aimed to verify if the online comments seen by consumers influences their behavioural intentions in different channels. The sixth empirical research study was conducted to explore the trust transference mechanism of TTP and its regulating factors. The laboratory experiments were mainly carried out using the following steps. In the first step, the participants were divided into different treatment groups. In the second step, different experiment stimulus were displayed in different treatment groups. In the third step, the attitudes, opinions and intentions towards relevant behaviours of the participants in different treatment groups were determined. In the fourth step, the roles and significance of the relevant factors in the construction of trust behaviours were explored through multigroup analysis.

Five assistants underwent a training period, which lasted for approximately one week, in order to understand the procedure of and the methods applied in the experiment. After completing the training, the assistants were allocated to each experiment. They were then asked to invite participants from the campus. After fully considering the feasibility of the
experiments, as well as the PLS-SEM’s minimum requirements for the sample number for data processing, it was decided that it was necessary to obtain 100 data samples for the two empirical research studies. Thus, 25 participants were invited for each treatment group, and the test was conducted four times in each experiment. The experiments were conducted in the laboratory (Room Number: 3-230) at the University of Wollongong in May 2017. The participants were invited randomly from among the students on the campus, and they were informed about the aim of the experiment and steps it entailed. After obtaining their consent, the (unpaid, voluntary) participants were randomly divided into different treatment groups. The following procedures were used:

1. Five assistants were assigned to different areas of the campus to count the number of people entering a building within the specified time.

2. Each assistant counted the number of people entering the building and invited those 10 to participate in the tests.

3. Each assistant was required to explain the aim and significance of the experiment to the invitees, stating that their responses would remain anonymous and they would not be paid; moreover, they were informed that they could choose whether or not they wanted to participate. If the invitees were willing to participate, the assistant guided them in how to follow the experiment. If the person refused to participate, the assistant tried to invite the next candidate in accordance with the previously-mentioned rules.

4. After successfully inviting five participants, the assistants led them back to the laboratory (Room Number: 3-230) at the University of Wollongong.

5. After all the assistants returned to the designated classroom, the researcher explained the experimental procedure again and informed the participants of their rights. After obtaining their consent the experiment was conducted, and data were collected.

The information presented above describes the entire process of the experiments. Four independent experiments were conducted for the third and sixth empirical research
studies used in the thesis. All the participants were invited, and each experiment was conducted in strict accordance with the above requirements.

### 3.5 Data Analysis

The proposed research model was verified with SEM, which is a linear statistical modelling technique widely used in research studies in the fields of economics, psychology, sociology and management. In social sciences research, when the relationship of multiple causes and results must be determined, or if the variables cannot be directly observed (latent variable), traditional statistical methods cannot be used. However, SEM overcomes those deficiencies and it has rapidly become an important tool for multivariate data analysis (Hooper, Coughlan, & Mullen, 2008).

Generally, there are two SEM methods: Covariance-Based Structural Equation Modelling (CB-SEM) and PLS-SEM (Joseph F. Hair, Hult, Ringle, & Sarstedt, 2017). PLS-SEM is more suitable for exploratory research that relies on predictions and the construction of theories. CB-SEM is more suitable for parameter estimation, model validation and comparison of different theories (Chin, 1998). In general, CB-SEM requires normally distributed data, while PLS-SEM does not (Joe F Hair, Ringle, & Sarstedt, 2011). Moreover, PLS-SEM can be utilised for research with a small sample size (Chin & Newsted, 1999). The general rules for selecting PLS-SEM and CB-SEM are shown in Table 3.1.

**Table 3.1 Rules for Choosing PLS-SEM and CB-SEM (Joseph F. Hair et al., 2017)**

<table>
<thead>
<tr>
<th>Use PLS-SEM when</th>
<th>Use CB-SEM when</th>
</tr>
</thead>
<tbody>
<tr>
<td>The goal is predicting key target constructs</td>
<td>The goal is theory testing, confirmation or comparison of alternative theories</td>
</tr>
<tr>
<td>The structural model includes formatively measured constructs</td>
<td>Error terms require additional specification</td>
</tr>
<tr>
<td>The structural model is complex</td>
<td>The structural model includes circular relationships</td>
</tr>
<tr>
<td>The sample size is small</td>
<td>The study requires a global goodness-of-fit criterion</td>
</tr>
</tbody>
</table>
The present research study aimed to explore the relevant factors that influence consumer trust and to determine how these factors impact trusting intentions. It also aims to investigate the mutual interactions and effects of different factors and analyse their internal mechanism. Moreover, the online trust model proposed in this research study is very complex. As stated above, PLS-SEM was selected as the method for analysing and processing the collected data, using the steps shown in Figure 3.4.

Figure 3.4 Procedure for applying PLS-SEM.

PLS-SEM is composed of a measurement model showing the relationship between the constructs and their indicators, and a structural model presenting the relationships among the constructs. Therefore, the data analysis results are evaluated in the steps shown in Table 3.2.

Table 3.2 Evaluation of the PLS-SEM Results (Joseph F. Hair et al., 2017)

<table>
<thead>
<tr>
<th>Evaluation of the Measurement Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Consistency</td>
</tr>
<tr>
<td>Convergent Validity</td>
</tr>
<tr>
<td>Discriminant Validity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluation of the Structural Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size and Significance of the Path Coefficients</td>
</tr>
</tbody>
</table>
3.6 Ethics

All six of the empirical studies were conducted to investigate the participants’ intentions for specific behaviours; thus, ethics is an essential consideration of this thesis. To ensure the rights of the participants, this thesis took the following steps:

First, the research was conducted under the guidance of two supervisors with extensive research experience, particularly Dr Mengxiang Li, who has years of practical experience in empirical research. Thus, the six studies were designed and conducted in a relatively reliable environment.

Second, the researcher had a detailed discussion with the Human Research Ethics Committee (HREC). Based on their advice, improvements were made to the forms, information letters, and letters of consent.

Third, after completing the design of the six empirical studies, the researcher submitted a research proposal to the HREC, as required, expounding upon the research arrangements, explaining how to guarantee the rights of the study participants, and other matters related to the process of data collection, and obtaining their approval for the research.

Fourth, the researcher strictly followed relevant institutional requirements when conducting the six empirical studies. For example, the researcher informed the participants in detail about the research before it began, including, but not limited to, the research purpose, methods and process. The researcher also stressed the unpaid and voluntary nature of participating in the research study, so the participants would have the right to refuse to participate or withdraw from participating at any time. The researcher only began data collection after obtaining the consent of the participants.

Fifth, all data were collected anonymously and stored on a designated computer. The data could not be copied and/or distributed at will, and the computer was also controlled by a password to ensure that only the researchers involved in the experiments had access. The
data were encrypted on a hard disk to ensure against the theft or loss of the computer, thus protecting the data and the privacy of the participants, to a large extent.
CHAPTER 4
THREE-DIMENSIONAL INTEGRATED TRUST MODEL

This chapter begins with an overview of the proposed research model, which is based on the literature review and TPB. It then provides a detailed explanation for various factors that influence consumers’ trust intentions and their inter-relationships. Next, the chapter presents the hypotheses of this study pursuant to the SEM. Finally, it presents an analysis of the data collected and verified through PLS-SEM.

4.1 Introduction

The level of trust of online consumers’ has been reported as an important factor that shapes the success of e-commerce (D. H. McKnight & N. L. Chervany, 2001; Salam, Rao, & Pegels, 2003). One of the most cited papers in the field of trust research has defined trust as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (Mayer, Davis, & Schoorman, 1995). This definition points out that trust is the willingness to bear risk, and this notion forms the foundation of the present study. Prior studies on consumers’ trust online have made significant contributions to the understanding of how consumers formulate trust online. They have identified three broad types of factors that determine consumers’ online trust intentions and trust behaviours. The first type is individual-related factors, which refer to consumers’ positive or negative feelings of trust in retailers and the online shopping environment, such as an individual’s propensity to trust (Gefen et al., 2003b; Hsu, 2008; Y. D. Wang & Emurian, 2005), perception of control (Suh & Han, 2003), individual characteristics (Mayer et al., 1995; D. H. McKnight & N. L. Chervany, 2001; McKnight et al., 1998), company size (Y. D. Wang & Emurian, 2005) and the
reputation of the business (Teo & Yu, 2005). The second type of factors is online media-related factors, which refer to the pressure perceived by a consumer from other people such as their families, colleagues, friends or other consumers. Examples of such factors include reputation (Beldad et al., 2010; Jøsang et al., 2007), word of mouth (Ha, 2004) and online reviews (Awad & Ragowsky, 2008). The third type of factors is institutional factors; they refer to the ‘beliefs that the situation and/or structures make the context conducive to trusting’ (McKnight et al., 1998). In other words, institution-based trust is not a consumer’s trust in the transaction component but the belief that an established institution can secure their rights and interests (Pavlou & Gefen, 2004; J. Zhang et al., 2016). After a systematic review of prior literature, we found that most studies have focused on examining the impact of one or another type of factor on consumers’ trust online instead of a holistic examination of all three types of factors (Özpolat et al., 2013; Pavlou & Gefen, 2004; Pennington et al., 2003; Salam et al., 2003). Although these studies have succeeded in conducting a granular investigation of the impact of a specific type of factor, considering the conventional online marketplace, consumers’ trust formation is not merely influenced by one type of factor alone (Nor & Pearson, 1970; Sun, Liu, Peng, Dong, & Barnes, 2014). Instead, consumers search for information from different sources to establish a relationship of trust with retailers. Consumers may, for instance, rely on their previous experience, study test reports on the products being sold, ask friends for advice or browse online comments of other consumers. The establishment of trust is a long, complex and ongoing process that is influenced and mediated by the consumers themselves, the online retailers, the institution, the online shopping environment and many other factors. Consequently, a single-dimensional trust model can only explain one type of influencing factor instead of the influence and effects among different types of factors. Such a model therefore ignores the possibility of interactions among different kinds of factors (Mansour, Kooli, & Utama, 2014; Mayer et al., 1995). Thus, there is a critical need for a research framework that encompasses individuals, the media and institutional factors and that investigates their collective impact on the crafting of consumers’ trust online.

To fill this gap in the research, one possible solution is to investigate an individual-media-
institution framework of consumers’ trust formation online. Two major reasons lead us to propose and investigate this Three-Dimensional Integrated Trust Model. First, this research framework integrates the most essential types of factors that influence consumer’s trust formation online. In this regard, it builds upon previous studies by providing an appropriate avenue for examining consumers’ online trust formation from a holistic perspective. Second, this research framework assesses the impact of the three critical types of factors on consumers’ online trust intentions and behaviour. As a result, it provides additional information on how these factors interact to influence consumers’ trust online. Consequently, the results of investigating this Three-Dimensional Integrated Trust Model could be applicable to the conventional online marketplace.

After prudently reviewing most of the seminal studies on online trust, we have built upon the theoretical foundation of TPB to synthesise the most critical factors with consideration to the three types of factors that influence trust formation online. Specifically, this research postulates that the trust behaviour of consumers is not only affected by their trust intentions but is also restricted by the ability of the consumer who executes the behaviour, opportunity, related resources and other actual control conditions. Moreover, personal attitudes, online reviews and TTP are the three main variables that determine trust intentions. Although they are conceptually independent, they interact in the process of the establishment and maintenance of a trust relationship.

The proposed Three-Dimensional Integrated Trust Model was validated by analysing a set of survey data from 374 online consumers in Australia. This study found that the intention of trust behaviour is influenced by all three factors. In particular, online reviews and TTP have a significant impact on trust intentions. Moreover, our findings reveal that the credibility of a TTP is an important measure for consumers to judge the reliability of its service. In addition, channels for consumers to access other consumers’ comments and reviews have an important impact on their trust intentions. Based on the findings, this research makes noteworthy contributions to the theoretical understanding of trust formation online. First, this study integrates trust in e-commerce with consumers’ attitudes,
intentions and behaviours as well as external structural guarantees and provides a new perspective for research on e-commerce and related issues. Second, the Three-Dimensional Integrated Trust Model presented in this study integrates the main factors that influence trust online synthesised from different perspectives and levels and discusses their interactions comprehensively and systematically. Third, the findings of this study indicate that the perceived channels of information on online reviews and the perceived type of TTPs and their services are independent factors that influence consumers’ trust in online shopping. This further enriches research models of factors influencing consumers’ trust in online shopping. Fourth, the relationship between the factors is verified and analysed to deepen the understanding of the mechanism of online trust. This study also provides actionable guidelines for industry practitioners that would help enhance consumers’ feelings of trust online. For example, the study clarifies the connotations and basic characteristics of online trust for industry practitioners and helps them gain a better understanding of online trust in the context of B2C e-commerce. Moreover, it can help e-commerce companies better grasp the trust demands of the virtual market and understand the main factors and mechanisms influencing consumer trust. Finally, this study enables companies to identify key factors in trust building, so as to make the trust building more purposeful and for trust risk prevention to have a better effect.

The rest of the chapter is organised into seven sections. Section 2 presents a review of the theoretical background in the research domain of online trust and the theoretical underpinnings of this study. Section 3 reviews major related studies in recent years. Thereafter, we present the trust model and elaborate on research hypotheses guided by TPB in Section 4. In Section 5, we expound the methodology of this research, explore the data collection and analysis and show the analysis results. Key findings are then presented in Section 6. Finally, Section 7 concludes this research and outlines the limitations and future research possibilities.
4.2 Theoretical Background

As discussed in Chapter 3, a fundamental belief of our study is that using TPB to build a holistic trust model can effectively explain consumers’ behaviours and increase the accuracy of the prediction of these behaviours. TPB is the most well-known theory on the relationship between attitude and behaviour in social psychology. According to it, the behavioural intention is the most direct factor influencing behaviour and, in turn, is affected by attitudes, subjective norms and perceived behavioural control. TPB has been widely applied to several studies in the field of behaviour, and it has been proved that the theory can significantly improve the ability of related research to explain and predict behaviours. Particularly with regard to the online shopping environment, intention refers to an online consumer’s recognition of the ability, integrity and good faith of the online retailer. Attitude refers to the online consumer’s opinion on whether the online retailer, website and the online environment are trustworthy. The subjective norm refers to the external comments perceived by online consumers, which may have an impact on their trust behaviour. Perceived behavioural control refers to the trust feelings of consumers that originate from the guarantee under specific situations, trust strategies or other constructs unrelated to people. The process of deciding to register on an online retailer’s website and finally completing the online transaction of goods and services essentially is the process of forming a trust-based behavioural intention and eventually performing the corresponding behaviour. Therefore, this study is grounded in the belief that we can study the factors that influence trust behaviour online with TPB and enhance consumer trust by improving these factors so as to increase online transactions.

4.3 Conceptual Model and Hypotheses

4.3.1 Conceptual Model

The overall trust model proposed is based on TPB, as shown in Figure 4.1. This Three-Dimensional Integrated Trust Model mainly explains the impact of online reviews and
TTP that consumers perceive, and the personal attitude of consumers on the behavioural intention of trust online. The personal attitude also has a regulating effect on the influencing effect of the other two factors.

**Personal Attitude** refers to consumers’ positive or negative feelings of trust in online retailers. These factors, namely enterprise size, website design, product price, the current overall e-commerce environment, past experiences with online transactions and the consumer’s personal propensity to trust collectively affect consumers’ personal attitude of trust.

**Online Reviews** represent the pressure perceived by a consumer from other people who think that he or she should or should not engaged in trust behaviour. The impact of social pressure is influenced by the channel of the information dissemination, the type of information presented and the quality of the information.

**TTP** refers to third-party economic entities that mainly aim at overcoming credit obstacles and credit risks of the virtual market, improving awareness of overall credit information and the reliability of the market, forming a good credit culture in the virtual market, expanding online transaction volumes and promoting the ongoing development of e-commerce. When consumers think that online retailers own more resources and opportunities from TTP and that the expected obstacles are smaller, they may have a stronger perception of control in the trust behaviour. Further, the types of services provided by TTP and the type and creditworthiness of the information presented will determine the degree of impact by TTP on consumers’ trust behaviour.
The interrelationships among the elements in the proposed model suggest the following:

1. The trust behaviour of consumers is not only affected by trust intentions but also restricted by the ability of the consumer who executes the behaviour, opportunity, related resources and other actual control conditions;

2. Personal attitude, online reviews and TTP are the three main factors that determine trust intentions. The more proactive the consumer’s trust attitude, the less negative the online review and the stronger TTP’s support is, the stronger the trust intention will be;

3. Personal attitudes, online reviews and TTP are conceptually independent but personal attitude will influence the other two factors in the process of the establishment and maintenance of a trust relationship online.
4.3.2 Research Hypotheses

The trust intention of consumers is an important factor in this model. As indicated by the TPB, people are rational individuals (Ajzen, 1991). Behavioural intention is the best means for reviewing the behaviours people perform when they have time to think about them beforehand (Ajzen, 1991; McKnight et al., 1998). Moreover, several studies point out that the behavioural intention of consumers can be effectively used to forecast their true behaviour (Gefen et al., 2008; Y. D. Wang & Emurian, 2005; X. Zhang & Zhang, 2005). Therefore, we propose the following hypothesis:

**Hypothesis 1.** *Consumers’ trust intention positively influences their trust behaviour when shopping online.*

According to TPB, an individual’s attitude towards a behaviour is determined by a combination of his or her belief in performing the behaviour and his or her evaluation of its outcome (Ajzen, 1991). Belief is a subjective norm and evaluation is the evaluation of outcomes. In an e-commerce environment, consumers’ propensity for trust and experience represents the subjective norms of their trust behaviour. Different objects and the overall environment of online shopping are information sources for consumers’ evaluation of their trust behaviour’s outcomes. Therefore, it is expected that positive trust attitudes will lead to higher intentions to perform trust behaviour in an online shopping environment. In the context of trust online, several studies have evidenced that trust behavioural attitude positively influences trust intention (Gefen et al., 2003b; Wu & Chen, 2005). Thus, we propose the next hypothesis of this study:

**Hypothesis 2.** *Consumers’ personal attitudes positively influence their trust intentions.*

The size of an enterprise is its commodity items and scope of its service. The larger an enterprise, the more capable it is of satisfying consumers’ demands (E. Kim & Tadisina, 2005). Enterprise size also represents its input on operations—if a large enterprise abuses its trust, it will suffer from larger losses (Koufaris & Hampton-Sosa, 2004). Therefore,
larger enterprises find it easier to build trust. This leads to our next hypothesis:

**Hypothesis 2.1** Enterprise size has a positive influence on consumers’ personal attitudes towards online trust.

Studies have found that consumers usually determine the credibility of a website by its appearance (D Harrison McKnight et al., 2002). According to Y. D. Wang and Emurian (2005), a website’s design can affect customers’ impressions and consequently their trust in an online retailer. Y. D. Wang and Emurian (2005) also proposed a theoretical framework for the factors of website design that influence consumers’ trust—these factors are structural design, content design, graphic design and social clue design. This leads to the next hypothesis:

**Hypothesis 2.2** An enterprise’s website design has a positive influence on consumers’ personal attitudes towards online trust.

Compared with traditional trading patterns, consumers are subject to higher risks in case of online shopping (Miyazaki & Fernandez, 2001). As reported by De Chernatony (1989), the product prices paid by consumers are often proportional to their perception of risk. Consumers will perceive a higher risk in the face of commodities sold at higher prices. Since they are confronted with higher risks, a high degree of attention must be paid to the product performance, quality and reviews. Consumers perceive a low risk in case of low-priced commodities, so the decision-making process is simple, and the trust relationship is easier to establish. Thus, our next hypothesis is as follows:

**Hypothesis 2.3** Product price has a negative influence on consumers’ personal attitudes towards online trust.

From the perspective of historical development, trust expands from a small group of intimate entities to a wider circle of strangers with whom one does not share blood or geographical ties. The judgment of trust also changes accordingly (Pavlou & Gefen, 2004). In the face of unfamiliar objects, due to a lack of information, consumers often depend on the protection of external laws, rigid norms and other objective conditions to
consolidate and strengthen their trust (Özpolat et al., 2013). For example, D Harrison McKnight et al. (2002) indicated that consumers feel secure when given guarantees, security measures or other institutional structures, which help generate trust. Dan J. Kim et al. (2008) also revealed that the success of trading is based on environmental guarantees such as commitments, contracts, regulations and warranties. Regulations allow consumers to trust that the behaviours of the other party are credible, and laws enable the fulfillment of commitments or contracts on schedule. Based on these arguments, we propose our next hypothesis as follows:

**Hypothesis 2.4**  The reliability of the e-commerce environment has a positive influence on consumers’ personal attitudes towards trust online.

Related literature has reported that consumers are influenced by their previous knowledge and experience in either information collection or purchase decisions made when shopping (M. K. Lee et al., 2006; Ling et al., 2010). An empirical study conducted by Childers (1986) found that consumers accumulate experience in their multiple purchases of a particular product, which lead to personal opinions that impact their future shopping decisions. All of these studies show that past experience of shopping online does influence future decision-making. Further, the shopping experience is also relevant to determining who or what consumers choose to trust, because not every shopping experience can result in the enhancement of trust (Doolin, Dillons, Thompson, & Corner, 2007). In early trading experiences, especially, if a consumer experiences dissatisfaction, the trading experience will be quickly regarded as a breach of trust, leading to a rapid decline in the level of trust and the customer’s likelihood of returning for another purchase compared to other online purchasing platforms. Thus, we posit our next hypothesis as follows:

**Hypothesis 2.5**  A dissatisfying past online shopping experience has a negative influence on consumers’ personal attitudes towards trust online.

The personal propensity to trust is the tendency of individuals to be willing or unwilling to trust others, which is a part of an individual’s personality traits (E. Kim & Tadisina,
2005; Koufaris & Hampton-Sosa, 2004). This propensity relies on the condition that no past experience is used for rational deduction, and there is a general belief that others will be kind and reliable. Propensity to trust is considered as a stable personality trait, which does not change with variations in one’s environment. It has been proved that the propensity to trust will directly affect the degree of trust customers feel when shopping online, especially for new or unfamiliar products, and a consumer’s propensity to trust will significantly impact the initial trust they place in these products (Gefen et al., 2003a). Mayer et al. (1995) also found that consumers will find trustworthy characteristics when deciding to trust or not, and then their personal propensity to trust will improve or decrease the influence of these characteristics on the trust behaviour generated. Based on these findings, the following hypothesis is posited:

**Hypothesis 2.6**  *Personal propensity to trust has a positive influence on consumers’ personal attitudes towards trust online.*

In TPB, individuals may perceive social pressure in the process making a decision with regard to specific behaviours, which is the influence of other people and groups on individual behaviour (Ajzen, 1991). In an e-commerce environment, such social pressure can be presented in the form of online reviews so as to affect consumers’ trust behaviour (Awad & Ragowsky, 2008; Cheung et al., 2008), which leads us to our next hypothesis:

**Hypothesis 3.**  *Other consumers’ negative online reviews negatively influence consumers’ trust intentions.*

Online reviews can be obtained from three channels—the seller’s channel, the platform-based channel and the social network channel (C. Cao & Yan, 2014). When consumers are faced with various sources of information, online reviews obtained from different channels may have different degrees of influence on their trust behaviour. At the same time, online reviews are presented in different formats such as scoring, labelling and comments (C. Cao & Yan, 2014). If consumers are subject to online reviews presented in different formats, these varying information formats may have varied degrees of influence
on them. In addition, the quality of an online review can exert an important influence on consumers’ acceptance of other people’s or groups’ opinions (Awad & Ragowsky, 2008; C. Cao & Yan, 2014). Several empirical studies have pointed out that compared with low-quality online reviews, high-quality online reviews are more convincing for consumers. In other words, high-quality online reviews have a strong positive impact on consumers’ willingness to trust. Therefore, we posit the following hypotheses:

**Hypothesis 3.1** Other consumers’ online reviews from many channels increase the influence of consumers’ perceived social pressure on their trust behaviour.

**Hypothesis 3.2** Other consumers’ online reviews in many different formats increase the influence of consumers’ perceived social pressure on their trust behaviour.

**Hypothesis 3.3** Other consumers’ online reviews that are of a high quality increase the influence of consumers’ perceived social pressure on their trust behaviour.

According to TPB, perceived behaviour control refers to individuals’ perception of the ease or difficulty of performing a given behaviour, and it is assumed to reflect past experience as well as anticipated impediments and obstacles of a given behaviour (Ajzen, 1991). The more resources and opportunities individuals believe they possess, the fewer obstacles or impediments they anticipate, and the greater their perceived control over the behaviour. To be specific, in terms of the trust environment online, through enterprise credit information that is transmitted and published by any TTP, consumers may gain a better understanding of enterprises so as to be able to judge their qualifications and credit status (Pavlou & Gefen, 2004; J. Zhang et al., 2016). Participation of TTPs in e-commerce activities can effectively reduce uncertainties in and obstacles to consumers’ trust behaviour and eventually enhance consumers’ perceived control of their trust behaviour (Miyazaki & Fernandez, 2001). For example, Cheung and Lee (2006) indicated that TTP had the most important influence on consumers’ trust behaviour online. Therefore, our next proposed hypothesis is as follows:

**Hypothesis 4.** TTP positively influences consumers’ trust intentions.
As pointed out by TPB, individuals’ perceived behaviour control is determined jointly by control beliefs and perceived power. In the online shopping environment, the service type of the TTP represents the control belief, and the credibility and presentation of the TTP represent expressions of perceived power. Specifically, consumers determine the resources, opportunities and obstacles they possess for trust behaviour on the basis of their perception of whether TTPs are presented and which service type of TTP is presented. Meanwhile, consumers make a judgment about these TTPs’ credibility and the type of TTP presented by these enterprises or webpages so as to confirm the degree of influence on their trust behaviour. Through previous analysis and research of B2C enterprises in Australia, five types of service TTPs have been proposed in C. Cao, Yan, and Li (2016)—payment, logistics, guarantees, certifications and recommendations—which are believed to denote different influencing factors on consumers’ trust behaviour control (C. Cao et al., 2016). Also, TTP credibility, namely the credit level, professional competency and specialty of providers of different types of service, may have an influence on consumers’ trust behaviour to varying degrees (Jun et al., 2017). Lastly, through an analysis and summary of B2C enterprise samples in Australia, the present study posits that information is mainly presented in three ways—narrative text, icon display and detailed credit reports (C. Cao & Yan, 2014; C. Cao et al., 2016). Some enterprises use narrative text to show their honours, qualifications and certifications, and some of the information may also be displayed through multimedia like pictures and videos. Such methods are often used on webpages to introduce a company’s historical information, especially various types of awards, honourable events, participation in public welfare activities and quality or service certifications. Icon display involves showing the logos of third-party certifications received and help illustrate the company’s qualifications. Such presentation is also used to display authentications for security, payment and privacy in an eye-catching position on a webpage in order to exert the greatest degree of influence on the trust of potential consumers (Özpolat et al., 2013). A detailed credit report is primarily presented to consumers combined with icons so that it can include more detailed information than icons alone can convey. This mainly includes various types of services provided by third parties along
with valid and expiry times and places of any service certifications. This allows consumers to better understand these services, which further influences their trust motivation. Detailed information disclosure and service descriptions enable online retailers to effectively strengthen the intensity of consumers’ execution of trust behaviour, reduce expected hindrances and therefore enhance their level of trust in online merchants (K. M. Kimery & McCord, 2002; Özpolat et al., 2013). The above analysis leads us to the following hypotheses:

**Hypothesis 4.1**  
_E-commerce enterprises with more service types of TTP increase consumers’ perceived control over their trust behaviour._

**Hypothesis 4.2**  
_E-commerce enterprises with more presentation types of TTP increase consumers’ perceived control over their trust behaviour._

**Hypothesis 4.3**  
_E-commerce enterprises with a higher credibility of TTPs increase consumers’ perceived control over their trust behaviour._

In an e-commerce environment, consumers tend to have no control over websites trading online. However, TTP can effectively convey trustworthy corporate information and enhance consumers’ level of trust (Head & Hassanein, 2002; Ma & Song, 2011). Further, consumers’ expected obstacles to their trust are somewhat decreased due to the presence of TTPs, which also enhances their perception of behavioural control. This study proposes that TTPs can not only promote the intention of trust but can also effectively promote the ultimate trust behaviour. Our next hypothesis is therefore as follows:

**Hypothesis 5.**  
_TTP positively influences consumers’ trust behaviour._

Consumers are more or less exposed to the online shopping environment because of the developments in e-commerce. As consumers become increasingly familiar with online shopping, their personal feelings become more and more intense in the trust behaviour (Doolin et al., 2007). Furthermore, when consumers believe that they are able to make reliable judgments, their perceived social pressure from other consumers decreases. In other words, other consumers’ comments have less of an impact on consumers who show
a higher degree of behavioural attitude. Our next hypothesis, therefore, is as follows:

**Hypothesis 6.** Consumers’ personal attitudes negatively influence their perceived social pressure from online reviews.

In fact, the degree of personal control of behaviour is often affected by time, information, ability and many other factors. Therefore, the corporate credit information conveyed by TTPs reduces consumers’ expectations of obstacles to their trust and makes it easier for them to enhance their trust behaviour (X. Hu et al., 2010; Jun et al., 2017). Since consumers’ shopping experiences and personal attitudes are continuously developing, this study posits that the effects of TTPs will become weaker when consumers have stronger behavioural attitudes. In other words, the stronger the personal attitude of a consumer, the weaker the transmission of credit information via TTPs. Our next hypothesis is therefore as follows:

**Hypothesis 7.** Consumers’ personal attitudes negatively influence their perceived control over TTPs.

### 4.4 Research Methodology

#### 4.4.1 Design and Measurements

The main purpose of this study is to determine the specific factors influencing consumers’ trust behaviours online based on TPB and to provide reasonable explanations for the role of each factor. In the early phase of this research, we obtained a large amount of necessary unstructured data through a qualitative analysis of second-hand data, reviews of related academic literature and interviews with industry experts. Through the qualitative analysis of these datasets, we proposed appropriate research hypotheses and developed measurement items. In the second phase, we presented a detailed description of factors influencing consumer trust through descriptive research design and described the effects of various factors on consumers’ trust behaviours.
We did so using a survey—a structured questionnaire distributed to various respondents to collect information on factors such as trust behaviours, attitudes, perception and motivations during online shopping. Data on the respondents’ demographic characteristics was also collected. This study utilised the noncomparative scaling technique, because, in this questionnaire, only one attribute or characteristic is evaluated at a time, and the generated data are basically interval scaled. More specifically, the questionnaire uses a Likert scale—an itemised rating scale—that requires the respondent to describe his or her degree of agreement or disagreement with each item. The scale in this questionnaire included seven degrees ranging from strongly disagree (1) to strongly agree (7). The second part of the questionnaire required the respondents to provide some of their demographic characteristics, such as gender, age etc.

### 4.4.2 Survey Procedure and Data Analysis

Currently, the mainstream consumer group of the B2C e-business environment is generally aged between 18 and 34. For this reason, the sampling survey was conducted among university students. The results are representative to some extent. In total, 491 samples were collected for this survey. The recovery rate was 100% due to immediate recovery. A sample was considered invalid if too many questions were unanswered, if most of the answers were the same or if the reverse target was contradictory to the positive target. After eliminating the invalid samples, 374 valid samples were obtained, accounting for 76.17% of the total questionnaires distributed. Table 4.1 lists the demographic information of the respondents.

<table>
<thead>
<tr>
<th>ID</th>
<th>Measure</th>
<th>Item</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI1</td>
<td>Gender</td>
<td>Male</td>
<td>53%</td>
<td>53%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>47%</td>
<td>100%</td>
</tr>
<tr>
<td>PI2</td>
<td>Age Group</td>
<td>&lt;18</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18-24</td>
<td>42%</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25-29</td>
<td>58%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Variance-based structural equation modelling (SEM) using SmartPLS 3.2.7 was used to validate the measures developed and to test the hypotheses. PLS-SEM was used because it places minimal restrictions on the measurement scales, sample size and residual distribution (Ringle, Sarstedt, & Straub, 2012). Two distinct steps were adopted for the data analysis in this research. The first step involved the assessment of the measurement (outer) model. The second step involved the assessment of the structural (inner) model and tested the relationships among the latent constructs of the research model (Joe F Hair, Sarstedt, Ringle, & Mena, 2012).

## 4.5 Results

### 4.5.1 Measurement Model

Assessment of the measurement model involved internal consistency reliability,
convergent validity and discriminant validity (Henseler, Ringle, & Sinkovics, 2009; Wetzels, Odekerken-Schröder, & van Oppen, 2009). Internal consistency reliability was examined based on the composite reliability (Bagozzi & Yi, 1988). As shown in Table 4.2, all of the composite reliability values are higher than 0.927 and all measures are robust in terms of their reliability, satisfying the commonly acceptable level. To evaluate convergent validity, each construct’s Average Variance Extracted (AVE) should exceed 0.50 (Bagozzi & Yi, 1988). The results in Table 4.2 support convergent validity since they all exceed 0.50, ranging from 0.763 to 0.949.

Table 4.2 Reliability Statistics

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB</td>
<td>Trust Behaviour</td>
<td>0.963</td>
<td>0.928</td>
</tr>
<tr>
<td>TI</td>
<td>Trust Intention</td>
<td>0.957</td>
<td>0.917</td>
</tr>
<tr>
<td>PA</td>
<td>Personal Attitude</td>
<td>0.953</td>
<td>0.834</td>
</tr>
<tr>
<td>ES</td>
<td>Enterprise Size</td>
<td>0.979</td>
<td>0.940</td>
</tr>
<tr>
<td>WD</td>
<td>Website Design</td>
<td>0.953</td>
<td>0.836</td>
</tr>
<tr>
<td>PP</td>
<td>Product Price</td>
<td>0.966</td>
<td>0.903</td>
</tr>
<tr>
<td>ECE</td>
<td>E-Commerce Environment</td>
<td>0.948</td>
<td>0.859</td>
</tr>
<tr>
<td>POT E</td>
<td>Past Online Transaction Experience</td>
<td>0.944</td>
<td>0.850</td>
</tr>
<tr>
<td>PPT</td>
<td>Personal Propensity to Trust</td>
<td>0.928</td>
<td>0.763</td>
</tr>
<tr>
<td>OR</td>
<td>Online Review</td>
<td>0.927</td>
<td>0.760</td>
</tr>
<tr>
<td>PCI</td>
<td>Perceived Channel of Information</td>
<td>0.965</td>
<td>0.901</td>
</tr>
<tr>
<td>PPFI</td>
<td>Perceived Presentation Format of Information</td>
<td>0.949</td>
<td>0.860</td>
</tr>
<tr>
<td>PQI</td>
<td>Perceived Quality of Information</td>
<td>0.932</td>
<td>0.773</td>
</tr>
<tr>
<td>TTP</td>
<td>Trusted Third Party</td>
<td>0.952</td>
<td>0.832</td>
</tr>
<tr>
<td>PTS</td>
<td>Perceived Type of Service</td>
<td>0.971</td>
<td>0.917</td>
</tr>
<tr>
<td>PTP</td>
<td>Perceived Type of Presentation</td>
<td>0.982</td>
<td>0.949</td>
</tr>
<tr>
<td>PC</td>
<td>Perceived Credibility</td>
<td>0.984</td>
<td>0.939</td>
</tr>
</tbody>
</table>

Discriminant validity was evaluated based on the Fornell-Larcker criterion, as per which the square root of the AVE from the construct should be much larger than the correlation
shared between the construct and all the other constructs in the proposed research model (Fornell & Larcker, 1981). Appendix A shows the correlations between the constructs, which supports their discriminant validity. The discriminant validity was further examined by the cross loadings of each measurement item on its assigned latent variable (Chin, 1998; Grégoire & Fisher, 2006), and the results are presented in Appendix B. Because the cross loading on their respective latent construct is higher than its cross loading on any other construct, the discriminant validity of the constructs is confirmed.

4.5.2 Structural Model

The primary aim of this study was to understand what impacts online consumers’ trust. The proposed research model was verified through PLS-SEM using SmartPLS 3.2.7. The results of the study are presented in Figure 4.2, and the hypotheses tested through PLS-SEM are shown in Table 4.3.
Table 4.3 Results of Hypothesis Testing

<table>
<thead>
<tr>
<th>No.</th>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Consumers’ trust intentions positively influence their trust behaviours when shopping online.</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Consumers’ personal attitudes positively influence their trust intentions.</td>
<td>Yes</td>
</tr>
<tr>
<td>2.1</td>
<td>Enterprise size has a positive influence on consumers’ personal attitudes towards online trust.</td>
<td>Yes</td>
</tr>
<tr>
<td>2.2</td>
<td>An enterprise’s website design has a positive influence on consumers’ personal attitudes towards online trust.</td>
<td>Yes</td>
</tr>
<tr>
<td>2.3</td>
<td>Product price has a negative influence on consumers’ personal attitudes towards online trust.</td>
<td>No</td>
</tr>
<tr>
<td>2.4</td>
<td>The reliability of the e-commerce environment has a positive influence on consumers’ personal attitudes towards online trust.</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### 2.5
A dissatisfying past online shopping experience has a negative influence on consumers’ personal attitudes towards online trust.  
Yes

### 2.6
Personal propensity to trust has a positive influence on consumers’ personal attitudes towards online trust.  
Yes

### 3
Other consumers’ negative online reviews negatively influence consumers’ trust intentions.  
Yes

### 3.1
Other consumers’ online reviews from many channels increase the influence of consumers’ perceived social pressure on their trust behaviour.  
Yes

### 3.2
Other consumers’ online reviews in many formats increase the influence of consumers’ perceived social pressure on their trust behaviour.  
Yes

### 3.3
Other consumers’ online reviews that are of a high quality increase the influence of consumers’ perceived social pressure on their trust behaviour.  
Yes

### 4
TTP positively influences consumers’ trust intentions.  
Yes

### 4.1
E-commerce enterprises with more TTP service types increase consumers’ perceived control on their trust behaviour.  
Yes

### 4.2
E-commerce enterprises with more TTP presentation types increase consumers’ perceived control over their trust behaviour.  
Yes

### 4.3
E-commerce enterprises with a higher credibility of TTPs increase consumers’ perceived control over their trust behaviour.  
Yes

### 5
TTP positively influences consumers’ trust behaviour.  
No

### 6
Consumers’ personal attitudes negatively influence their perceived social pressure from online reviews.  
Yes

### 7
Consumers’ personal attitudes negatively influence their perceived control over TTP.  
Yes

### 4.6 Discussion and Implications

This study defines the personal propensity to trust as the general expectation for whether others are worthy of confidence without specific information (D Harrison McKnight et al., 2002). People often need to make the choice in their lives of whether to or to not trust other people and things. The choice made reflects each individual’s unique growth experiences, personality and cultural background, inevitably leading to different propensities in their intrinsic trust in other people and things (Mayer et al., 1995). Trust propensity is not based on the experience or cognition of a certain object but on the general experience and social cognition in one’s life thus far. If the person trusting lacks a deep understanding of a certain trustee, the impact of this basic trust propensity in their degree of trust will
become more obvious (E. Kim & Tadisina, 2005; Koufaris & Hampton-Sosa, 2004). In this study, we find that the personal propensity to trust has a positive influence on consumers’ personal attitudes towards trust online—as a consumer’s personal propensity to trust increases, his or her tendency to trust online shopping also increases. This conclusion supports the views of many researchers: on account of the virtuality of the online environment, the consumer may naturally consider it with a risk perception. If the consumer’s personal propensity to trust is rather high, even with no other information to judge or identify risk, the consumer would tend to choose to trust online shopping (E. Kim & Tadisina, 2005; McKnight et al., 1998; Wu & Chen, 2005).

Based on their daily experiences, the product price paid by consumers is always proportional to the risk they perceive (Miyazaki & Fernandez, 2001). For instance, a consumer has different risk perceptions when buying a computer as compared to when buying a pencil. Because the former involves a higher expense, the decision-making process when purchasing a computer is rather complicated, and consumers are highly concerned with performance, quality, price, style and other aspects of the product. The decision-making process for the latter, on the other hand, is rather simple (De Chernatony, 1989). This study began by assuming that online shopping is riskier for consumers than traditional methods of transaction because of the virtuality of the online environment; therefore, consumers would prefer to buy lower priced products when shopping online. However, evidence shows that product price has not played a significant role in consumers’ trust levels online. This is because the purchasing costs of consumers also include the cost of information searching, time and other expenditures, apart from the product price they pay directly. For modern people whose pace of life is quickening day by day, just-in-time, convenience and ready availability when shopping are more important than product price. Traditional methods of transaction require consumers to put in a large amount of time and effort, while online shopping remedies this defect. Thus, from the view of total cost of shopping, consumers are gradually giving less consideration to the product price, which can also explain why in the virtual environment, where products cannot be physically touched, consumers may still be willing to purchase products with a high unit price.
The results also show that other consumers’ negative reviews negatively influence trust intentions. Consumers who pay more attention to negative online reviews about a particular online retailer will have a lower trust intention when shopping online. This study also finds that TTP positively influences consumers’ trust intentions. Also, the consumers focusing more on TTP have a higher degree of trust intention in online shopping. However, this study did not find any direct impact of TTP on trust behaviour.

The research results show that consumers who focus more on TTP have a higher degree of trust in online shopping. These consumers make careful comparisons when they choose their shopping sites and finally shop on highly credible sites or online stores and obtain a satisfactory shopping outcome. With this beneficial cycle, consumers gradually increase their trust level. Also, some shopping sites aware of the importance of trustworthiness have begun to take TTP measures or to offer services to eliminate consumers’ worries, which reduces their perceived risk to some extent (X. Hu et al., 2010; Özpolat et al., 2013). On the contrary, consumers who believe that TTP has a small impact on their online shopping experience have lower trust in online shopping overall. These consumers may have a lack of understanding of TTP functions and may have a lower trust in online shopping because they have had a poor shopping experience on a bad website or online store that may have engaged in malicious frauds.

Improving consumers’ trust in online shopping is a collective project that needs practitioners to collaborate and mutually coordinate in every aspect. From the perspective of businesses, this study offered the following suggestions based on its findings:

For consumers, other consumers’ reviews about the products, services and contents of the website they have availed of represent critical sources of information about the store’s reputation. (Dan J. Kim et al., 2008; Senecal & Nantel, 2004). Businesses should make full use of this tool to improve consumers’ trust. However, it is far from enough to rely on operators’ efforts alone. Online retailers should also draw on support from TTPs to further enhance consumer trust. The functions of TTPs serve different purposes but are generally intended to improve consumers’ trust in online shopping (X. Hu et al., 2010;
Özpolat et al., 2013). Once a website that files an application meets the requirements of a TTP, it will allow the website to add its own logo to convey the following message to its consumers: this website is certified by a certain authority and there is no worry in shopping here. Meanwhile, these TTPs will regularly or irregularly publish evaluation reports and publish the names of the most reliable websites and online stores. Obviously, therefore, the existence of TTPs can improve the overall level of consumer trust in online shopping (J. Zhang et al., 2016).

4.7 Conclusions and Limitations

Online transactions have become increasingly popular with both merchants and consumers because of the internet being highly interactive, convenient, transparent and individualised. Trust plays an indispensable role in the online transaction environment because of its virtuality and anonymity. The lack of trust is, therefore, a major obstacle preventing the further development of online shopping.

This study examined ordinary consumers’ trust in online shopping based on the TPB so as to explore specific factors affecting consumers’ trust online. On the basis of a literature review and by taking into account the background of the Australian market, we developed our research hypotheses and theoretical models and used a questionnaire to obtain data. The PLS-SEM was employed as the primary analysis tool, and composite reliability, AVE, Fornell-Larcker criterion and cross loading were used to test the reliability and validity of the scale.

This study explores and summarises specific factors that have a significant influence on consumers’ trust in online shopping. The findings show that channels used by consumers to access other consumers’ comments and reviews have an important impact on their trust. This means consumers are not confined to one information channel but obtain information from as many channels as possible. The findings also indicate that the information quality of an online review has a non-negligible impact on consumers’ trust propensity. The higher the quality of the online review as perceived by customers, the stronger influence
it will have on their trust propensity. This study also examined the influence of TTP on consumer trust and the composition of the TTP services. The results revealed that the different types of TTP services influence consumer trust to varying degrees. The credibility of a TTP is an important measure for consumers to judge the reliability of its service. The more the trustworthiness of a TTP, the more consumers accept their guarantee, certification and related services.

The conclusions of this research enrich and build upon existing theories of consumer trust, online marketing and consumer behaviour, and they can be used as reference and guidance for the marketing and management practices of relevant enterprises. Certainly, this study also has some limitations that can be improved upon through further studies. First, the total number of samples is insufficient. As pointed out by Chin and Newsted (1999), the number of samples must be greater than the total number of questions—preferably 10 times the total number of questions. The sample size of this research is 374, which is more than the total number of questions but falls short of being 10 times the number. Second, because this study was mainly carried out in campuses of universities, it resulted in the monotonous distribution of samples in terms of educational background; that is, all the respondents have received higher education. Therefore, the conclusions are not widely applicable and cannot be generalised to all consumers. The research model needs to be replicated to examine the robustness of the findings across online consumers with diverse educational backgrounds.
CHAPTER 5
THE INFLUENCE FACTORS OF ONLINE REVIEW QUALITY

In the previous chapter, the roles and influence of different factors on consumers’ trust intentions were explored in detail. The results of the empirical research prove that consumers’ trust in merchants is influenced by online reviews. Furthermore, the empirical data indicate that only online reviews characterised as high quality can have a significant influence on consumers’ trust intentions. However, there are no clearly defined judgment criteria for measuring information quality of online reviews. In this section, with the TPB and the Three-Dimensional Integrated Trust Model as the theoretical underpinnings, and based on related studies on online reviews, we delve into the definition and connotations of online review quality in detail and investigate the influencing factors of online review quality on consumers. PLS-SEM is applied in this study for evaluating the research model and the hypotheses. The results obtained from 259 Internet users as our sample show that online review quality as perceived by consumers is mainly reliant on accuracy, completeness, currency, format and credibility. Later, we also discuss the theoretical contributions and practical significance of this research and provide some suggestions for enterprises regarding the processing of online reviews and identification of quality.

5.1 Introduction

Online reviews are increasingly becoming an important source for consumers who seek a good understanding of products and enterprises before making purchases online (H. S. Bansal & Voyer, 2000). Currently it is a common practice for e-commerce websites, such as Amazon and Taobao, to offer an online review system to encourage trust and shopping decisions from consumers (F. Zhu & Zhang, 2010). With the continuous development of e-commerce, third party review sites such as Yelp.com and Dianping.com have begun to
emerge and become platforms for consumer reviews. Consumers may also share their reviews of goods or services via social networks, including Twitter, Facebook, Weibo and so on. As indicated by a lot of empirical studies, online review information from the different aforementioned environments can have an important influence on consumers’ trust behaviours and shopping decisions (Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004; S. S. Li & Karahanna, 2015).

However, related work also reveals that not all review information is the same; only the review information characterised as being high quality can have a significant influence (Cheung et al., 2008; Z. Liu & Park, 2015; Mudambi & Schuff, 2010). High-quality online reviews can better reduce the risks perceived by consumers while shopping, help them to choose more suitable goods or services and build up their trust in enterprises (Cheung et al., 2008; Z. Zhang et al., 2010; F. Zhu & Zhang, 2010). For enterprises, high-quality online reviews are useful for improving services and increasing the trust level of potential consumers (F. Zhu & Zhang, 2010). Therefore, identifying high-quality online reviews is very important for their sales and operations.

Although different characteristics of online reviews have been analysed from multiple facets and their influence on information quality has been looked into, there has not yet been any holistic analysis of the influence of different factors of online review quality on consumers’ trust intentions. Due to differences in research perspectives, empirical data and focal points, a relatively uniform theoretical framework of online review quality has not been formed yet in this field.

For this purpose, we propose the following two questions: 1) Which factors determine the quality of an online review? and 2) How can these factors influence consumers’ trust intentions? To answer these questions, this research examines the influencing factors of online review quality, their mechanisms of action and their further influence on consumers’ trust intentions and behaviours in a controlled environment.

This research constructs an influencing factor model of online review quality based on
the TPB and the Three-Dimensional Integrated Trust Model (Ajzen, 1991; C. Cao & Yan, 2014). PLS-SEM is applied to analyse 259 pieces of sample data to test the research model and hypotheses presented. The research results reflect, to some extent, the influence on consumers’ behaviours and intentions by the factors of online review quality. This can provide an overall understanding of online review quality and, subsequently, theoretical reference for future research.

5.2 Theoretical Background and Hypotheses

The growing penetration of the Internet in industries has propelled the growth of information sharing and exchange platforms such as blogs, social media, review sites and e-commerce websites. Consumers tend to post their comments on products or enterprises on different online channels, thus influencing other consumers (S. S. Li & Karahanna, 2015). On the basis of existing related studies, this research re-examines the meaning of the online review (opinions and perception of products) and shopping experiences posted by consumers on online shopping websites or other platforms, such as review websites, forums, social networks, blogs, microblogs and instant messaging tools. These perceptions by consumers may be positive or negative and derive from their personal experience or the experience of others (such as family members, friends or colleagues).

In an online shopping environment, consumers need to conduct their own product research and information comparison to make a shopping decision (Awad & Ragowsky, 2008; H. S. Bansal & Voyer, 2000; Beldad et al., 2010). Their consumption of online reviews greatly influences their intention to buy (Dellarocas et al., 2007; S. S. Li & Karahanna, 2015). Online shopping is confronted with some challenges owing to existing problems of current online shopping markets, such as the online environment being flooded with false information as a result of bad practices by some enterprises, as well as the existence of an overwhelming amount of review information of differing quality (Beldad et al., 2010). To buy the right products, consumers need to improve their identification skills before making a decision. Enterprises must identify and display high-
quality online reviews to offer better online shopping experience. For consumers, research on online review quality and its influencing factors is conducive to explaining and assisting their rational choices regarding online consumption. For enterprises, this research can help them understand consumer preferences, continuously improve their services and effectively enhance consumers' levels of trust.

In order to investigate the influencing factors of online review quality and their mechanisms of action, this research constructs a theoretical research framework, as shown in Figure 5.1, based on the Three-Dimensional Integrated Trust Model described in Chapter 4. As pointed out by TPB, most consumers are rational individuals and when they have time to think over their trust behaviour, looking at their intentions subsequently becomes the best way to examine their decision making. Moreover, we indicated in Chapter 4 that trust intention is determined jointly by a consumer’s personal attitude towards trust behaviour, TTPs and reviews from other consumers (C. Cao & Yan, 2014). The reviews from other consumers represent the pressure perceived by the consumer from others regarding whether he or she should or should not execute the behaviour. In turn, the degree of such pressure is influenced jointly by information posting channels, the presentation of the information and the quality of the information. Based on the above theory, this research, by controlling for other influencing factors in the Three-Dimensional Integrated Trust Model proposed by Chapter 4 and using the experiment method, explores the influence of different influencing factors of online review quality on consumers’ trust intentions (C. Cao & Yan, 2014). After referring to the definition and measurement of information quality in the information system by Wixom and Todd (2005), the theoretical framework is constructed by selecting six factors from the consumers’ perspective: credibility, completeness, currency, accuracy, format and volume.
Credibility refers to the trustworthiness of a reviewer, which can reflect their professional competence and expertise. The higher the credibility, the higher ranking the reviewer enjoys in the virtual community. According to related studies, credibility is an important feature that distinguishes one reviewer from another and is a key factor that influences online review quality (Newman, 2003). Highly credible reviewers are generally deemed to have a high level of professional knowledge and a wealth of experience (N. Hu et al., 2008). As a consequence, they have a greater influence in the virtual community and their reviews appear more authoritative, trustworthy and of a higher quality for consumers. Thus, it is hypothesised that:

**Hypothesis 1.** The perceived credibility of online reviews positively influences consumers’ trust intentions.

Currency measures the difference between the time reviewers post the online reviews and when the consumers read them. The smaller such a difference is, the newer the reviews are; they are more current. For a product, more recent reviews are more valuable for reference and have a stronger influence on consumers’ trust intentions (Mudambi & Schuff, 2010). Hence, it is hypothesised that:

**Hypothesis 2.** The perceived currency of online reviews positively influences consumers’ online trust intentions.

Completeness refers to the extent to which all the necessary information is provided in online reviews. Most studies recognise that completeness of information has a significant positive correlation with review quality (Cheung et al., 2008; Filieri, 2015). This is

---

**Figure 5.1 Theoretical Research Framework**

![Diagram showing the theoretical research framework with nodes for Trust Intention, Credibility, Completeness, Currency, Accuracy, Format, and Volume, interconnected to illustrate the interplay between these factors.](image)
because the more complete the review is, the more information consumers can obtain about performance, price, quality and services of the product, thus effectively helping consumers make decisions. Consequently, this research proposes the following hypothesis:

**Hypothesis 3. The perceived completeness of online reviews positively influences consumers’ online trust intentions.**

Accuracy measures the degree of accuracy of reviews of products or services as expressed by online review information. If accurate review information is available to consumers, this will have an important influence on their trust behaviours and intentions (Gefen et al., 2003b; Hennig-Thurau et al., 2004; N. Hu et al., 2012). Since the online environment is filled with a massive amount of review information, consumers naturally tend to discard reviews that are inaccurate and cannot convey reliable and valuable information. This type of information is unable to influence consumers’ judgments regarding their behavioural decisions. Therefore, the following hypothesis is proposed:

**Hypothesis 4. The perceived accuracy of online reviews positively influences consumers’ online trust intentions.**

Format represents consumers’ opinions of the effect of information presentation. As platforms and websites are flooded with a myriad of review information, good presentation is required by consumers to quickly find relevant reviews. If the review information can be clearly presented to consumers in a friendly way, it is easy for consumers to access reviews and make behavioural decisions accordingly (N. Hu et al., 2012; Z. Liu & Park, 2015). If the review information is presented in an untidy way, it is difficult for consumers to effectively obtain information and make judgments. Hence, it is hypothesised that:

**Hypothesis 5. The perceived format of online reviews positively influences consumers’ online trust intentions.**

Volume refers to the quantity of reviews on some products or services. The more reviews, the higher the chances that consumers get valuable information from them, and the more
conducive they are to consumers’ understanding of the product or service (Mudambi & Schuff, 2010; Wu & Chen, 2005). In other words, the volume of reviews determines the quantity of information available to consumers. The more information, the more resources consumers will have and the easier it will be to make decisions regarding their purchasing behaviours. Therefore:

Hypothesis 6. The perceived volume of online reviews positively influences consumers’ online trust intentions.

5.3 Research Methodology

This research questionnaire was designed by referring to scales that have passed reliability and validity tests in a large number of related studies, and then making modifications and adjustments pursuant to the characteristics of online reviews (Filieri, 2015; Gefen et al., 2003b; N. Hu et al., 2008; S. S. Li & Karahanna, 2015). The questionnaires were distributed online through Qualtrics.com. A total of 284 questionnaires have been collected. After eliminating those answered very quickly or with too many similar options selected, we ended up with 259 valid samples. The commonly used 10 times rule was applied here to determine the PLS sample size (Chin & Newsted, 1999). In accordance with this rule, the minimum sample size required for this research is 60. The accuracy of PLS-SEM evaluation can be effectively enhanced by the 259 pieces of data collected.

5.4 Results

5.4.1 Demographic Characteristics

The demographic characteristics of the respondents of the questionnaire are shown in Table 5.1. In terms of the age structure, 62% of respondents fall into the 18–29 age group. In terms of gender, male respondents are slightly more represented, accounting for 59% of the total sample size. The demographics also show that most respondents are well educated and about 79% of them have at least a bachelor’s degree.
Table 5.1 Demographic Profile of Respondents (N=259)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Category</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>153</td>
<td>59%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>106</td>
<td>41%</td>
</tr>
<tr>
<td>Age</td>
<td>18–29</td>
<td>160</td>
<td>62%</td>
</tr>
<tr>
<td></td>
<td>30–39</td>
<td>53</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>Over 40</td>
<td>46</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>College</td>
<td>55</td>
<td>21%</td>
</tr>
<tr>
<td>Education</td>
<td>Bachelor’s Degree</td>
<td>108</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td>Post Graduate Degree</td>
<td>96</td>
<td>37%</td>
</tr>
</tbody>
</table>

5.4.2 Measurement Model

In this study, the internal consistency of measurement items is mainly used for evaluating the reliability of the scale. The internal consistency is tested by Composite Reliability and Cronbach’s α. In an exploratory research, the Composite Reliability is required to be greater than 0.7 and the Cronbach’s α should be larger than 0.6 (Chin, Marcolin, & Newsted, 2003). In Table 5.2, the Composite Reliability and Cronbach’s α of all latent variables meet this requirement, indicating that the measurement model has a good internal consistency reliability.

Table 5.2 Descriptive Statistics for the Constructs

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Items</th>
<th>CA</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy (Accu)</td>
<td>3</td>
<td>0.992</td>
<td>0.995</td>
<td>0.984</td>
</tr>
<tr>
<td>Completeness (Comp)</td>
<td>3</td>
<td>0.989</td>
<td>0.993</td>
<td>0.978</td>
</tr>
<tr>
<td>Credibility (Cred)</td>
<td>3</td>
<td>0.986</td>
<td>0.991</td>
<td>0.973</td>
</tr>
<tr>
<td>Currency (Curr)</td>
<td>3</td>
<td>0.992</td>
<td>0.995</td>
<td>0.984</td>
</tr>
<tr>
<td>Format (Form)</td>
<td>3</td>
<td>0.962</td>
<td>0.975</td>
<td>0.930</td>
</tr>
<tr>
<td>Trust Intention (Inte)</td>
<td>4</td>
<td>0.972</td>
<td>0.979</td>
<td>0.923</td>
</tr>
<tr>
<td>Volume (Volu)</td>
<td>3</td>
<td>0.946</td>
<td>0.959</td>
<td>0.887</td>
</tr>
</tbody>
</table>

Note: Cronbach’s α (CA), Composite Reliability (CR), Average Variances Extracted (AVE).

Generally, the latent variables can be reasonably explained only when all outer loadings are larger than 0.708 (Fornell & Larcker, 1981). In Table 5.3, the outer loading satisfy the convergent validity requirement. Besides that, the convergent validity and discriminant validity of the PLS model are also dependent on the AVE, which must be greater than 0.5;
its square root shall be larger than the correlation coefficient of other latent variables (Fornell & Larcker, 1981). Table 5.3 and Table 5.4 show that our data meet the conditions above, which indicates that a good linear equivalence relationship exists between measured variables and latent variables. Thus, the measured variables can adequately explain the latent variables.

Table 5.3 Factor Loadings and Cross-loadings

<table>
<thead>
<tr>
<th></th>
<th>Accu</th>
<th>Comp</th>
<th>Cred</th>
<th>Curr</th>
<th>Form</th>
<th>Inte</th>
<th>Volu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accu.1</td>
<td>0.993</td>
<td>-0.416</td>
<td>0.045</td>
<td>0.021</td>
<td>0.135</td>
<td>0.67</td>
<td>0.202</td>
</tr>
<tr>
<td>Accu.2</td>
<td>0.991</td>
<td>-0.409</td>
<td>0.038</td>
<td>0.031</td>
<td>0.131</td>
<td>0.665</td>
<td>0.201</td>
</tr>
<tr>
<td>Accu.3</td>
<td>0.992</td>
<td>-0.428</td>
<td>0.037</td>
<td>0.025</td>
<td>0.148</td>
<td>0.656</td>
<td>0.190</td>
</tr>
<tr>
<td>Comp.1</td>
<td>-0.414</td>
<td>0.991</td>
<td>0.282</td>
<td>0.169</td>
<td>0.325</td>
<td>0.090</td>
<td>-0.203</td>
</tr>
<tr>
<td>Comp.2</td>
<td>-0.405</td>
<td>0.99</td>
<td>0.294</td>
<td>0.190</td>
<td>0.339</td>
<td>0.108</td>
<td>-0.199</td>
</tr>
<tr>
<td>Comp.3</td>
<td>-0.437</td>
<td>0.986</td>
<td>0.276</td>
<td>0.167</td>
<td>0.316</td>
<td>0.068</td>
<td>-0.190</td>
</tr>
<tr>
<td>Cred.1</td>
<td>0.045</td>
<td>0.281</td>
<td>0.988</td>
<td>0.061</td>
<td>0.830</td>
<td>0.378</td>
<td>-0.127</td>
</tr>
<tr>
<td>Cred.2</td>
<td>0.022</td>
<td>0.288</td>
<td>0.985</td>
<td>0.044</td>
<td>0.813</td>
<td>0.366</td>
<td>-0.124</td>
</tr>
<tr>
<td>Cred.3</td>
<td>0.050</td>
<td>0.285</td>
<td>0.986</td>
<td>0.047</td>
<td>0.818</td>
<td>0.389</td>
<td>-0.118</td>
</tr>
<tr>
<td>Curr.1</td>
<td>0.024</td>
<td>0.177</td>
<td>0.057</td>
<td>0.994</td>
<td>-0.04</td>
<td>-0.091</td>
<td>0.345</td>
</tr>
<tr>
<td>Curr.2</td>
<td>0.035</td>
<td>0.181</td>
<td>0.054</td>
<td>0.990</td>
<td>-0.025</td>
<td>-0.078</td>
<td>0.328</td>
</tr>
<tr>
<td>Curr.3</td>
<td>0.019</td>
<td>0.176</td>
<td>0.045</td>
<td>0.993</td>
<td>-0.037</td>
<td>-0.106</td>
<td>0.328</td>
</tr>
<tr>
<td>Form.1</td>
<td>0.128</td>
<td>0.33</td>
<td>0.823</td>
<td>-0.047</td>
<td>0.967</td>
<td>0.403</td>
<td>-0.317</td>
</tr>
<tr>
<td>Form.2</td>
<td>0.152</td>
<td>0.286</td>
<td>0.792</td>
<td>-0.037</td>
<td>0.962</td>
<td>0.379</td>
<td>-0.293</td>
</tr>
<tr>
<td>Form.3</td>
<td>0.123</td>
<td>0.344</td>
<td>0.789</td>
<td>-0.017</td>
<td>0.964</td>
<td>0.381</td>
<td>-0.345</td>
</tr>
<tr>
<td>Inte.1</td>
<td>0.650</td>
<td>0.095</td>
<td>0.372</td>
<td>-0.094</td>
<td>0.384</td>
<td>0.964</td>
<td>0.003</td>
</tr>
<tr>
<td>Inte.2</td>
<td>0.637</td>
<td>0.106</td>
<td>0.375</td>
<td>-0.084</td>
<td>0.406</td>
<td>0.966</td>
<td>-0.037</td>
</tr>
<tr>
<td>Inte.3</td>
<td>0.634</td>
<td>0.088</td>
<td>0.350</td>
<td>-0.094</td>
<td>0.376</td>
<td>0.958</td>
<td>-0.010</td>
</tr>
<tr>
<td>Inte.4</td>
<td>0.649</td>
<td>0.067</td>
<td>0.375</td>
<td>-0.088</td>
<td>0.379</td>
<td>0.955</td>
<td>-0.027</td>
</tr>
<tr>
<td>Volu.1</td>
<td>0.202</td>
<td>-0.169</td>
<td>-0.112</td>
<td>0.336</td>
<td>-0.309</td>
<td>-0.011</td>
<td>0.936</td>
</tr>
<tr>
<td>Volu.2</td>
<td>0.176</td>
<td>-0.187</td>
<td>-0.117</td>
<td>0.320</td>
<td>-0.318</td>
<td>-0.024</td>
<td>0.981</td>
</tr>
<tr>
<td>Volu.3</td>
<td>0.230</td>
<td>-0.248</td>
<td>-0.140</td>
<td>0.306</td>
<td>-0.322</td>
<td>-0.006</td>
<td>0.908</td>
</tr>
</tbody>
</table>

Note: Boldface values indicate item loading on the assigned constructs.

Table 5.4 Discriminant Validity of Constructs

<table>
<thead>
<tr>
<th></th>
<th>Accu</th>
<th>Comp</th>
<th>Cred</th>
<th>Curr</th>
<th>Form</th>
<th>Inte</th>
<th>Volu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accu</td>
<td>0.992</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp</td>
<td>-0.421</td>
<td>0.989</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cred</td>
<td>0.040</td>
<td>0.289</td>
<td>0.986</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curr</td>
<td>0.026</td>
<td>0.179</td>
<td>0.052</td>
<td>0.992</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 5.4.3 Structural Model

By bootstrapping in SmartPLS 3.2.7, the $t$-test of significance was conducted for the model path coefficient. The original number of samples is 259, the maximum number of iterations is 5000, and the path coefficient and significance results are shown in Figure 5.2. Of the six hypotheses presented in this research, five have passed the significance test. The results of the empirical research show that completeness, credibility, currency, accuracy and format are the main influencing factors on consumers’ trust intentions. Moreover, the path coefficient reflects the degree of influence of different latent variables on the consumers’ trust intentions. The results show that accuracy has the strongest influence, with the order of influence for the remaining factors being completeness, currency and format.

The model predictability of this research can be evaluated through the coefficient of determination ($R^2$). The larger the $R^2$, the stronger the explanatory power of measured variables towards latent variables. In general, the explanatory power is weak when $R^2$ is within the range of 0.25–0.5 and moderate within the range of 0.5–0.75 (Fornell & Larcker, 1981). In this study, the degree of explanation of the model for consumers’ trust intentions is 72.7%, which means the explanatory power of this model meets the requirements.

![Figure 5.2 The Path Coefficient of the Research Model](image)

<table>
<thead>
<tr>
<th></th>
<th>Form</th>
<th>Inte</th>
<th>Volu</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.139</td>
<td>0.669</td>
<td>0.200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.332</td>
<td>0.093</td>
<td>-0.200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.831</td>
<td>0.383</td>
<td>-0.125</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0.035</td>
<td>-0.094</td>
<td>0.336</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.964</td>
<td>0.402</td>
<td>-0.330</td>
<td>0.942</td>
</tr>
</tbody>
</table>

*Note:Boldface values on the diagonal are the square root of the AVE.*
5.5 Discussion and Implications

5.5.1 Summary of the Results

Based on previous studies, this research firstly re-examines the meaning of the online review and further indicates that the influencing factors of information quality are composed of accuracy, completeness, currency, credibility, format and volume (C. Cao & Yan, 2014; N. Hu et al., 2008; S. S. Li & Karahanna, 2015; Z. Liu & Park, 2015). This research tests the influence of the information quality of online reviews on trust behavioural intentions by means of empirical research and by controlling for two other major influencing factors in the Three-Dimensional Integrated Trust Model proposed in Chapter 4: personal attitudes and TTPs. We attempt to identify different factors that influence information quality and its further influence on trust behavioural intentions. Through the analysis of sample data by PLS, this research found that online review quality is mainly influenced jointly by accuracy, completeness, currency, credibility and format. In other words, the accuracy of the content of online reviews, adequacy of information, time of posting, reputation of reviewers and information presentation influence consumers’ trust intentions to varying degrees. Only online review information that meets the high-quality criteria will have a positive and important influence on consumers’ trust intentions.

In terms of the influence of different factors, accuracy of information seems to have the most important influence on consumers’ trust intentions. Consumers desire to get information from reviews that are accurate (Z. Liu & Park, 2015). We argue that because the online shopping environment is flooded with reviews, only those with accurate, authentic and reliable descriptions of shopping experiences can attract consumers’ attention and influence their intentions. Second, the completeness of information also has a very significant impact on consumers’ trust intentions. Reviews containing more detailed and sufficient information will help consumers to understand all aspects of online transactions, thus will more effectively assist consumers in making decisions. Third, the currency of information; in other words, the timeliness of information, also has a significant influence
on consumers’ trust intentions. The closer in time reviews are posted, the more they can represent the current status of the product or service, which enables consumers to effectively keep abreast of the latest situation and understand problems or risks they face in buying the item, thus allowing for more accurate decision making (Mudambi & Schuff, 2010). Fourth, the credibility of reviewers has a significant influence on trust intentions. The reason why highly credible information is considered to be an important factor is that such information providers tend to have more professional competence, knowledge and broader experience (Cheung et al., 2008). Therefore, consumers have a higher degree of trust in them. This also reflects the psychology of consumers being more influenced by celebrities or authority figures in an online shopping environment (Banerjee et al., 2017; G. Cui et al., 2014; Filieri, 2015; H. Hong et al., 2017). After viewing reviews from opinion leaders or trusted professionals, they can easily make behavioural decisions. Fifth, the format in which information is presented also has a significant influence on trust intentions. Whether the information is presented in a way that is neat and legible can affect the ease of consumers’ access to that information. The reason why this factor has the least significant influence is that currently enterprises and reviewers place a lot of emphasis on how information is presented and generally follow the design principles of human-computer interaction (Z. Liu & Park, 2015). So, from the consumers’ point of view, this factor becomes less important. Finally, the influence of the volume of online reviews is not significant for consumers’ trust intentions. In our opinion, the reason is that the volume of information can reveal the degree of popularity of a product or service to some extent, but this research discusses the influence on trust, rather than shopping intentions; it cannot be used as a criterion for judging information quality. Consumer trust is influenced by the specific content of information, rather than the volume. Although a greater volume may increase consumers’ likelihood of finding valuable information, it will not necessarily lead to an improvement or deterioration of consumers’ trust intentions. The main reason is that consumers generally need to read and get an in-depth understanding of only one or a few particular reviews.
5.5.2 Implications of Theory

With the continuous development of e-commerce, increasing research interests is being shown in the field of online reviews (Gefen et al., 2003b; Hennig-Thurau et al., 2004; N. Hu et al., 2012; S. S. Li & Karahanna, 2015). This study also makes some contribution to this field. First, most related studies show that there is a significant positive correlation between online review quality and consumer behaviour, but they rarely discuss different influencing factors on information quality (Cheung et al., 2008; Filieri, 2015; Hennig-Thurau et al., 2004). This research attempts to synthesise different factors that influence information quality and present them in a comprehensive framework. The results provide a holistic view for understanding information quality.

Second, this research deeply explores and compares different influencing factors on review quality, further revealing their influence on consumers’ trust intentions and expounding the differences in such influence. This is helpful for researchers to better understand the internal mechanism of information quality influencing factors. The results of this research encourage researchers to consider the complex influence of the factors presented here when examining the influence of online reviews on consumer behaviour and decision making.

5.5.3 Practical Implications

Online reviews are of great significance for enterprises because can be utilised to build trust from potential consumers in e-commerce environments, and establish a reliable feedback mechanism to gather relevant information to improve marketing (F. Zhu & Zhang, 2010). However, as pointed out by researchers, only high-quality online review information can have a significant influence on consumers’ behavioural intentions and decisions (C. Cao & Yan, 2014; Cheung et al., 2008; N. Hu et al., 2008). Therefore, enterprises should try their best to present consumers with online review information characterised as high quality. The results of this research may provide valuable guidance for
enterprises to identify the quality of online reviews and their influencing factors. To this end, this research provides the following two suggestions for relevant practitioners:

First, when making judgments regarding the quality of online reviews, enterprises should comprehensively inspect the following factors: accuracy, completeness, currency, format and credibility. More specifically, a piece of high-quality information that has a significant influence on consumer behaviour and decision making should have the following characteristics:

1. the information offered in the online review is accurate, true, reliable and detailed;
2. the review information is complete, adequate and comprehensive;
3. the review information should be recent, rather than old and obsolete;
4. the format of the information (i.e. the presentation) should follow the design principles of ease-of-use and friendliness, to maximise convenience for consumers to access to relevant information; and
5. the provider of the information should be highly credible.

Second, enterprises should be aware that online review providers do not necessarily provide information conforming to all the above criteria while posting reviews. It is more common that a single piece of information has high-quality characteristics only in one or several aspects. As pointed out in this research, the influencing factors of quality perceived by consumers, ranking in a descending order of influence, are accuracy, completeness, currency, credibility and format. Accordingly, when dealing with a large amount of online review information, enterprises should prioritise the presentation of information with greater influence according to the above order, so as to have a greater impact on consumers’ trust intentions.

5.6 Limitations and Future Research

Although the research framework proposed here is developed from related theories and
previous research results, it inevitably has its own limitations. First, one important reason for using PLS in this research is that this method is particularly suitable for use with a small sample size (Chin & Newsted, 1999). The number of samples in this research meet the minimum requirement for sample size, but a larger sample size can increase the accuracy of model testing and estimation (Chin & Newsted, 1999). Second, the demographic characteristics of 259 samples indicate that respondents of this survey are mainly in the 18–34 age group, and most of them are well educated, with a bachelor’s degree or higher. This conforms to the characteristics of Australian online shoppers to some extent, but the research results may still be faced with the problem of inadequate representation. Therefore, these results have some limitations in explaining the influencing factors of online review quality on consumers’ trust intentions.

Future research will appropriately increase data collection and take into account consumers’ understanding and opinions of such influencing factors in a broader range of people, so as to solve the two problems mentioned above. Future research may also investigate whether results differ among different countries. This mainly involves the regulatory roles of relationships in this research model played by culture, shopping environment, personal circumstances and other factors. The results of such studies can further enrich the theoretical framework of this research, improve the mechanism that affects online review quality and further enhance our overall understanding of information quality.

5.7 Conclusion

Online trust is a key factor to be considered in the development of e-commerce, and online reviews are an important factor influencing consumers’ trust behaviours and shopping intentions (Gefen et al., 2003b). Furthermore, a large number of empirical studies point out that online review information with high-quality characteristics has a more significant influence on consumers’ trust intentions and decisions (C. Cao & Yan, 2014; Cheung et al., 2008; N. Hu et al., 2008). In order to better understand the functions and mechanism of the quality of online reviews, this research constructs a research model and hypotheses
based on previous studies, relying on the TPB and the Three-Dimensional Integrated Trust Model (Ajzen, 1991; C. Cao & Yan, 2014). Through empirical research based on 259 data samples, PLS was used to evaluate the model and test the hypotheses. This research argues that the influencing factors of online review quality are mainly comprised of the following: accuracy, completeness, currency, credibility, format and volume. The results further show that all factors other than volume have a significant influence on consumers’ trust intentions. This research also found differences in the influence of different factors. Among them, accuracy and completeness of information seem to be the most influential. While credibility and format may also have some influence, the aforementioned factors clearly dominate. Through constructing a framework of information quality, this research explains different factors that influence the information quality and expounds the mechanism of how they do so. The research results provide a new perspective for understanding the influence of the information quality of online reviews in an e-commerce environment on consumers’ trust intentions, which is beneficial to both researchers and practitioners.
CHAPTER 6
THE IMPACT OF DIFFERENT CHANNELS OF ONLINE REVIEW

As pointed out in the previous two chapters, online reviews can significantly influence consumers’ trust intentions, and the information quality has regulating effects on the degree of influence. With the further exploration of the acquisition of online reviews, we found that consumers acquire information from different channels. Although related studies demonstrate that online reviews have a great influence on consumers’ trust behaviours or even propensity for online shopping, few of them have probed into whether there are differences in the influence of online reviews from different channels. In this chapter, the channels for review information available to consumers are divided into three types: seller-based, agent-based and SNS-based. Using the experiment method, we investigated the influence of the review information from different channels on consumer trust. The results are presented as follows: First, the data analysis results support the definition and classification of review channels in this research. Second, the results demonstrate that the review information from different channels has different degrees of influence on consumer trust. Moreover, this research also finds that the review information viewed by consumers on SNSs has the greatest influence on their trust, while reviews from the enterprise’s own environment have the least influence. Finally, this research reveals that according to statistical results, there is no significant difference in the influence of agent-based and SNS-based online reviews.

6.1 Introduction

With the further development and extensive application of Internet technology, consumers are free to share their own experiences of the purchase and use of specific products in the online shopping environment (Sirkka L Jarvenpaa et al., 1999; Ma & Song, 2011).
Furthermore, they may also comment on the price or performance of purchased products or services from several aspects (Hennig-Thurau et al., 2004). Because of the virtual nature of e-commerce, consumers cannot see physical goods as they do in physical stores, so online shopping is usually subject to considerable uncertainties and risks (Dan J. Kim et al., 2008). Therefore, viewing other consumers’ reviews and information posted on the Internet becomes an effective risk control method. Empirical studies have indicated that review information has an important influence on consumer decisions, but researchers have not thoroughly studied whether different channels of information have different influences on consumer trust and decisions.

Before answering the question above, it is important to understand what an online review is. Through the literature review, we found that the online review is defined differently by different researchers (H. S. Bansal & Voyer, 2000; Y. D. Wang & Emurian, 2005; Wu & Chen, 2005). For example, Corbitt et al. (2003) define it as a product review given by consumers on the website of the manufacturer or third parties, while Gefen et al. (2003b) deem it to be any positive or negative review on the product or the company by potential, actual or previous consumers, which can be available to the masses or organisations through the Internet. Wu and Chen (2005) suggest that the online review is a communication of information between relevant parties on the use or features of products or services, and all parties in the exchange are consumers.

This research re-examines the meaning of the online review. According to the related research of C. Cao and Yan (2014) on the influencing factors of consumer trust, we consider online reviews as opinions and perceptions of products or services, buying experience and relevant companies posted by consumers on online shopping websites or other network media such as other review websites, forums, social network websites, blogs, microblogs and instant messaging tools. This perception of consumers may be positive or negative, and derive from their personal experience or the experience of others (such as family members, friends or colleagues). Furthermore, based on different channels of review information available to consumers, we divide online reviews into three categories:
seller-based, agent-based and SNS-based.

In order to understand whether the review information available to consumers from different channels has different degrees of influence on consumer trust, the experimental method was used in this research for verification. Firstly, this research construct virtual online travel product websites and recruited 100 participants for experiments. Then, online review information from different channels was posted to measure participants’ propensity to trust. After an analysis of the measurement model through PLS-SEM, our research hypothesis was tested by PLS-MGA. The results show that the review information from different channels has different degrees of influence on consumer trust. The degrees of influence of SNS-based and agent-based review information have no statistically significant difference, but they can have a significantly higher influence the level of consumer trust in comparison with the seller-based review information.

The structure of this chapter is organised as follows: The second section introduces the theoretical background and the corresponding research hypothesis. The third section describes the research design and methodology used in this research. The data analysis results are presented in the fourth section. The results, discussion and the significance of the research are presented in the fifth section. The sixth section explains the limitations of this research and the further studies that should be carried out in the future. The conclusion of the research is given in the last section.

6.2 Theoretical Background and Hypothesis

In a study on the influencing factors of consumer trust, Three-Dimensional Integrated Trust Model applied the TPB and pointed out that the majority of consumers are controlled by their own will when trust behaviours occur (Ajzen, 1991). Furthermore, consumers’ trust intention is an important factor that determines whether trust behaviours occur or not, and the intention is determined jointly by consumers’ personal attitude regarding trust behaviour, TTPs and online reviews from other consumers. This model is shown in Chapter 4. Based on the above-mentioned research, this chapter focuses on the
regulating effect on trust by review information available to consumers from different channels. In other words, this chapter answers the following two questions: First, are there different channels for consumers to browse online reviews? Second, if different channels exist, is there any difference in their influence on consumers’ trust intentions? Therefore, to investigate the regulatory role of channels on online reviews, we constructed a research model based on the TPB and the core factors of the Three-Dimensional Integrated Trust Model proposed in Chapter 4.

To compare different online review channels, we first attempt to summarise the channels available to consumers. The online purchase of products is achieved directly on the seller’s website or indirectly on sales platforms of third parties (such as Amazon, eBay, Taobao, etc.). These provide two different channels of review information available to consumers. However, due to the continuous development of the Internet and the wide application of social media, more and more consumers can obtain a large amount of user review information through social media such as Facebook, Twitter and WeChat, thus forming a third channel for online reviews.

Based on this, we defined the channels available to consumers as follows: a channel refers to a medium through which the information is obtained or transferred when it moves from the distributor to the recipient. This medium may be another consumer, a seller or a third-party platform. This research divides the channels of online reviews into three types, namely seller-based, agent-based and SNS-based, as shown in Figure 6.1.

![Figure 6.1 Online Review Channels](image)

In seller-based online reviews, the site for posting and exchange of the reviews belongs
to the seller, and the seller reserves ownership of review information released in this environment. For example, let’s take a look at the website of the hardware seller Apple, as shown in Figure 6.2. Its online store provides consumers with product ratings and reviews from other customers, so they may browse the corresponding review information to read other buyers’ descriptions of the advantages and flaws of the products. As indicated by other studies, owing to the virtual nature of the online environment, the credibility of online reviews is of crucial importance and has a profound impact on consumers’ degree of acceptance and propensity to trust the reviews (Beldad et al., 2010; Ma & Song, 2011; D Harrison McKnight et al., 2002; Newman, 2003). Because the review information from this channel is posted in the seller’s online store and the seller often has the right to delete unfavourable reviews, this will weaken the degree of trust of consumers to some extent. The main reason is that potential consumers build trust in unfamiliar sellers by reading other consumers’ reviews on their shopping experiences and products. In this process, if the seller can intervene and remove or challenge consumer reviews, this can affect the general credibility of online reviews in the mind of consumers (Doolin et al., 2007; Jøsang et al., 2007).

Figure 6.2 Reviews in the Online Apple Store

In agent-based online reviews, the site for the posting and exchange of online reviews
belongs to an independent third party, such as a third-party sales platform or review agent; the seller of the product does not retain ownership of the information. Taking eBay as an example (shown in Figure 6.3), sellers may post and sell their products through this online sales platform. Potential consumers may determine the trustworthiness of any seller by utilising the rating system provided by eBay. Furthermore, in each transaction, consumers can provide a detailed evaluation and description of various aspects of product quality and seller behaviour, and make them publicly available on eBay’s review information display platform, thus helping other consumers to effectively evaluate trustworthiness. As pointed out by Cheung et al. (2008) in an empirical study, truthful and reliable online reviews have a strongly positive influence on consumers’ trust and buying intentions. Meanwhile, according to other researchers, the credibility of the communication platform of online reviews may also significantly influence consumers’ degree of acceptance and their propensity to trust (Ye et al., 2011; Z. Zhang et al., 2010). The review information released in an agent platform is independent and beyond the control of the seller, so it is more independent and truthful than the seller’s own channel. Therefore, review information perceived by consumers from this channel is considered highly reliable.
In SNS-based online reviews, the exchange of online reviews mainly occurs in the social network environment, such as social media websites, blogs, microblogs, instant messaging tools and other network media; information distributors reserve ownership and modification rights of such information. With the widespread use of social media, a large number of consumers share their reviews on a certain product or service with connections in their social networks (such as relatives, colleagues and friends) through social media tools such as Facebook (shown in Figure 6.4). This way of sharing reviews is more interactive and resonant. The information from this channel can be communicated without the aid of other agents, so it is easier for consumers to obtain true and detailed review information. Since connections in the social network are closer than those with with unfamiliar consumers, these reviews have a more pronounced influence on consumer trust. Discounting obvious commercial advertising features and interests, the review on this channel tend to be highly trustworthy (Xu, 2014; F. Zhu & Zhang, 2010).
The three channels above reflect different ways through which review information is transferred from the distributor to the recipient. Their difference lies in the fact that the review information posted on third-party platforms is independent of the seller. The way in which information is presented and the management rules depend on the specific site where the information is distributed. Review information from the seller-based channel is presented to potential consumers usually after analysis, sorting and optimisation by the seller. The SNS-based review information is distributed directly in the social network of the reviewers without the help or processing of an agent.

Through the comparison and explanation of the above three channels, this research indicates that online reviews from different channels have different degrees of influence on consumer trust. Accordingly, this research puts forward the following hypotheses:

**Hypothesis 1.** There is a significant difference between online review information perceived by consumers on seller-based channels and agent-based channels.

**Hypothesis 2.** There is a significant difference between online review information perceived by consumers on seller-based channels and SNS-based channels.
Hypothesis 3. There is a significant difference between online review information perceived by consumers on agent-based channels and SNS-based channels.

6.3 Research Methodology

6.3.1 Research Model

This study analyses the influence of different channels on consumers’ trust intentions by using SEM. Furthermore, the research hypothesis is tested by measuring and comparing the influence on trust of online review content viewed by consumers in different treatment groups.

6.3.2 Experiment Design

In order to test the influence of online reviews from different channels on the degree of consumer trust (based on the Three-Dimensional Integrated Trust Model proposed in Chapter 4), this research put forward a research model for the research hypothesis, as shown in Figure 6.5. This research divided three treatment groups according to different channels of online reviews. A simulated online travel product shopping website was displayed to participants in each treatment group. This website mainly included two content sections: the travel product introduction information and consumer review information from different channels. To make it look real, the website design was based on a real online travel website. An introduction to the experimental scenario was given to each participant before visiting the virtual website. Then, the participants had 10 minutes to browse the travel product information and review information and five minutes to complete the questionnaire.

The experimental scenario was set up as follows: As potential buyers of online travel products, all participants had enough money and time to complete a trip. Through the information displayed on the simulated website, participants made a decision on whether to buy and completed a questionnaire on their behaviour, attitude and degree of trust. To
ensure that participants’ decisions were not affected by the website design, the simulated websites displayed in this experiment to all treatment groups were very similar. Meanwhile, the experiment also controlled for the presentation of travel product information and specific content and the number of reviews, guaranteeing that these factors would not cause a disturbance to the experiment results. After restricting the influence of other variables on consumer behaviour, the only difference between each treatment group became the different channels of online reviews.

Figure 6.5 The Research Model

Although PLS-SEM has good explanatory power in the case of a small sample size, a large sample size can increase the consistency of model testing (Joe F Hair et al., 2012). The requirement for PLS sample size is a minimum sample size of 10 times the largest number of predictors for any dependent variable in the model (Chin et al., 2003; Henseler et al., 2009). The largest number of indicators for the research model in this research is five, meaning the minimum sample size should be 50. To further enhance the explanatory power of the model, 100 data samples were collected. For this purpose, four experiments were performed. Each experiment had 25 participants and there were 100 participants in total. Their demographic characteristics are shown in Table 6.1. The participants were randomly selected and tested by the three different simulated websites, each of which
included one type of channel of online reviews.

Table 6.1 The Demographic Profile of Respondents (N=100)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Category</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>57</td>
<td>57.00%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>43</td>
<td>43.00%</td>
</tr>
<tr>
<td>Age</td>
<td>Under 25</td>
<td>41</td>
<td>41.00%</td>
</tr>
<tr>
<td></td>
<td>25-34</td>
<td>53</td>
<td>53.00%</td>
</tr>
<tr>
<td></td>
<td>Over 35</td>
<td>6</td>
<td>6.00%</td>
</tr>
<tr>
<td>Education</td>
<td>College</td>
<td>37</td>
<td>37.00%</td>
</tr>
<tr>
<td></td>
<td>Undergraduate</td>
<td>54</td>
<td>54.00%</td>
</tr>
<tr>
<td></td>
<td>Postgraduate</td>
<td>9</td>
<td>9.00%</td>
</tr>
<tr>
<td>Internet Experience</td>
<td>6-8</td>
<td>6</td>
<td>6.00%</td>
</tr>
<tr>
<td>(in years)</td>
<td>9-10</td>
<td>26</td>
<td>26.00%</td>
</tr>
<tr>
<td></td>
<td>&gt;11</td>
<td>68</td>
<td>68.00%</td>
</tr>
<tr>
<td>Shopping Frequency</td>
<td>3-6</td>
<td>8</td>
<td>8.00%</td>
</tr>
<tr>
<td>(per year)</td>
<td>7-11</td>
<td>39</td>
<td>39.00%</td>
</tr>
<tr>
<td></td>
<td>&gt;12</td>
<td>53</td>
<td>53.00%</td>
</tr>
</tbody>
</table>

6.3.3 Data Analysis

In this research, the reliability and validity of the corresponding scales are tested using PLS-SEM, so as to ensure that the scales are moderately reliable, stable and consistent in measuring related variables (Chin, 1998). Then, by bootstrapping, the t-test of significance was conducted for the model path coefficient of the three different channels, for determining whether online reviews from different channels have a significant level of influence on consumer trust (Chin et al., 2003). Next, these channels were compared in pairs using the Parametric Test to determine whether there are significant differences in the influence of different channels (Sarstedt, Henseler, & Ringle, 2011).
6.4 Results

6.4.1 Measurement Model

In this research, PLS-SEM was used to test and evaluate the validity of the research model and SmartPLS 3.2.7 software was utilised to process and analyse the data. Evaluation of the measurement model meant evaluating the relationship of measurement items and latent variables and judging the effectiveness of the fit between the theoretical model and sample data. It mainly involved reliability and validity tests (Henseler et al., 2009).

Evaluation of the reliability was mainly meant to evaluate whether the scales are reliable, stable and consistent when measuring related variables (Joe F Hair et al., 2012). In this study, Composite Reliability was employed to evaluate the internal consistency reliability, and factor loading was utilised to evaluate the reliability of indicators. Composite Reliability equal to or greater than 0.7 indicates very high reliability (Chin, 1998); factor loads larger than 0.7 mean that the indicator has good reliability (Chin, 1998). In Table 6.2, Composite Reliability of all latent variables is greater than 0.7, indicating that the scales have good internal consistency reliability.

<table>
<thead>
<tr>
<th>Items</th>
<th>Items</th>
<th>CA</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude (ATT)</td>
<td>4</td>
<td>0.992</td>
<td>0.994</td>
<td>0.976</td>
</tr>
<tr>
<td>Perceived Behavioural Control (PBC)</td>
<td>3</td>
<td>0.944</td>
<td>0.964</td>
<td>0.899</td>
</tr>
<tr>
<td>Online Review (OR)</td>
<td>2</td>
<td>0.957</td>
<td>0.979</td>
<td>0.959</td>
</tr>
<tr>
<td>Purchase Intention (PI)</td>
<td>2</td>
<td>0.981</td>
<td>0.991</td>
<td>0.982</td>
</tr>
<tr>
<td>Trust (TRU)</td>
<td>5</td>
<td>0.993</td>
<td>0.995</td>
<td>0.974</td>
</tr>
</tbody>
</table>

Note: Cronbach’s α (CA), Composite Reliability (CR), Average Variances Extracted (AVE).

For the evaluation of the validity of the measurement model, it is often necessary to assess the content validity, convergent validity and discriminant validity (Bagozzi & Yi, 1988). Content validity is the extent to which the measurement content represents the measurement subject. The scales measuring variables in this research are scales selected from...
classic literature and therefore have good content validity. Convergent validity refers to the degree of correlation between the indicators of the same latent variable. It is usually assessed by AVE and Composite Reliability. If AVE is not less than 0.5 and Composite Reliability is not less than 0.7, the measurement model has good convergent validity (Fornell & Larcker, 1981). As shown in Table 6.2, the corresponding AVE and Composite Reliability values are above the threshold, which indicates that the measurement model in this research has good convergent validity.

Discriminant validity refers to the degree to which the indicators of different latent variables are not related. It is mainly used for assessing the degree of difference between latent variables (Joe F Hair et al., 2012). The discriminant validity is often evaluated by the Fornell-Larcker criterion and cross-loadings. The Fornell-Larcker criterion requires that the square root of the latent variable AVE should be greater than the correlation coefficient between it and related latent variables (Chin, 1998). In terms of the examination of cross-loadings, when the standard external loadings of each measurement item are larger than the cross-loadings of other measurement items, the measurement model has good discriminant validity (Wetzels et al., 2009). As shown in Table 6.3 and Table 6.4, the results of this research meet the criteria and demonstrate that the measurement model has good discriminant validity. The overall quality of the measurement model is quite satisfactory.

**Table 6.3 The Correlation between the Dimensions**

<table>
<thead>
<tr>
<th></th>
<th>ATT</th>
<th>PBC</th>
<th>OR</th>
<th>PI</th>
<th>TRU</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT</td>
<td>0.988</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC</td>
<td>-0.038</td>
<td>0.948</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>0.846</td>
<td>0.120</td>
<td>0.979</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI</td>
<td>0.889</td>
<td>-0.130</td>
<td>0.820</td>
<td>0.991</td>
<td></td>
</tr>
<tr>
<td>TRU</td>
<td>0.878</td>
<td>-0.021</td>
<td>0.847</td>
<td>0.952</td>
<td>0.987</td>
</tr>
</tbody>
</table>

*Note: Boldface values on the diagonal are the square root of the AVE.*
Table 6.4 The Factor Loadings and Cross-loadings

<table>
<thead>
<tr>
<th></th>
<th>ATT</th>
<th>PBC</th>
<th>OR</th>
<th>PI</th>
<th>TRU</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT1</td>
<td>0.990</td>
<td>-0.037</td>
<td>0.836</td>
<td>0.876</td>
<td>0.865</td>
</tr>
<tr>
<td>ATT2</td>
<td>0.988</td>
<td>-0.045</td>
<td>0.838</td>
<td>0.88</td>
<td>0.866</td>
</tr>
<tr>
<td>ATT3</td>
<td>0.988</td>
<td>-0.040</td>
<td>0.828</td>
<td>0.881</td>
<td>0.867</td>
</tr>
<tr>
<td>ATT4</td>
<td>0.986</td>
<td>-0.027</td>
<td>0.843</td>
<td>0.878</td>
<td>0.872</td>
</tr>
<tr>
<td>PBC1</td>
<td>-0.046</td>
<td>0.949</td>
<td>0.124</td>
<td>-0.115</td>
<td>-0.006</td>
</tr>
<tr>
<td>PBC2</td>
<td>-0.031</td>
<td>0.939</td>
<td>0.101</td>
<td>-0.114</td>
<td>-0.015</td>
</tr>
<tr>
<td>PBC3</td>
<td>-0.032</td>
<td>0.955</td>
<td>0.116</td>
<td>-0.138</td>
<td>-0.035</td>
</tr>
<tr>
<td>OR1</td>
<td>0.834</td>
<td>0.085</td>
<td>0.980</td>
<td>0.817</td>
<td>0.844</td>
</tr>
<tr>
<td>OR2</td>
<td>0.823</td>
<td>0.150</td>
<td>0.979</td>
<td>0.788</td>
<td>0.813</td>
</tr>
<tr>
<td>PI1</td>
<td>0.884</td>
<td>-0.126</td>
<td>0.816</td>
<td>0.991</td>
<td>0.945</td>
</tr>
<tr>
<td>PI2</td>
<td>0.879</td>
<td>-0.131</td>
<td>0.809</td>
<td>0.991</td>
<td>0.941</td>
</tr>
<tr>
<td>TRU1</td>
<td>0.866</td>
<td>-0.004</td>
<td>0.836</td>
<td>0.936</td>
<td>0.988</td>
</tr>
<tr>
<td>TRU2</td>
<td>0.866</td>
<td>-0.007</td>
<td>0.841</td>
<td>0.942</td>
<td>0.988</td>
</tr>
<tr>
<td>TRU3</td>
<td>0.855</td>
<td>-0.014</td>
<td>0.836</td>
<td>0.936</td>
<td>0.986</td>
</tr>
<tr>
<td>TRU4</td>
<td>0.871</td>
<td>-0.034</td>
<td>0.833</td>
<td>0.937</td>
<td>0.986</td>
</tr>
<tr>
<td>TRU5</td>
<td>0.873</td>
<td>-0.044</td>
<td>0.831</td>
<td>0.945</td>
<td>0.986</td>
</tr>
</tbody>
</table>

Note: Boldface values indicate item loading on the assigned constructs.

6.4.2 Multi-group Analysis

A significance test (t-test) was conducted to the path coefficient by applying bootstrapping in SmartPLS 3.2.7. The size of the original sample is 100 and the number of bootstrap subsamples is 5000; the significance test results of the path coefficient of each treatment group are shown in Figure 6.6.
To understand the difference in the review information perceived by consumers from different channels, this research compared the PLS path patterns of these channels. A significant difference in the pattern relations represents the existence of heterogeneity (Joe F Hair et al., 2012). Furthermore, in order to test the research hypotheses in this chapter, we used PLS-MGA to compare the influence of online reviews from different channels on consumers’ trust intentions. We compared the three channels in pairs according to the parametric approach to PLS-MGA proposed by Sarstedt et al. (2011) for two-group comparison. The following Equation 6.1 and the t-test of independent samples were applied to determine whether there is a significant difference between different treatment groups (i.e. different channels). The comparison results are shown in Table 6.5 and the conclusions regarding the research hypotheses are presented in Table 6.6.

**Equation 6.1 The Parametric Approach to PLS-MGA (Sarstedt et al., 2011)**

\[
t = \frac{Path_{Sample, 1} - Path_{Sample, 2}}{\sqrt{\frac{(m - 1)^2}{(m + n - 2)} \cdot S.E._{Sample1}^2 + \frac{(n - 1)^2}{(m + n - 2)} \cdot S.E._{Sample2}^2}} \cdot \sqrt{\frac{1}{m} + \frac{1}{n}}
\]
Table 6.5 The Parametric Significance Test

<table>
<thead>
<tr>
<th></th>
<th>t-value 1 vs 2</th>
<th>t-value 1 vs 3</th>
<th>t-value 2 vs 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR-&gt;TRU</td>
<td>2.197*</td>
<td>2.160*</td>
<td>0.816</td>
</tr>
</tbody>
</table>

Note: 1=Seller-based, 2=Agent-based, 3=SNS-based; * p<0.05, ** p<0.01, *** P<0.001.

Table 6.6 The Results of the Research Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1. There is a significant difference between online review information perceived by consumers on seller-based channels and agent-based channels.</td>
<td>Supported</td>
</tr>
<tr>
<td>H2. There is a significant difference between online review information perceived by consumers on seller-based channels and SNS-based channels.</td>
<td>Supported</td>
</tr>
<tr>
<td>H3. There is a significant difference between online review information perceived by consumers on agent-based channels and SNS-based channels.</td>
<td>Not Supported</td>
</tr>
</tbody>
</table>

6.5 Discussion and Implications

6.5.1 Discussion

Based on the literature review, this research re-examines the meaning of the online review and further points out the difference between channels of review information available to consumers. The research enhances our understanding of the channels of review information available to consumers and is helpful for exploring which channels have a greater influence on consumer trust. The results of the empirical research and the corresponding experiments demonstrate that different review information channels have varying degrees of influence on consumer trust.

Through PLS-MGA, we compared whether there is a significant difference in the influence of review information from different channels on consumer trust. The results show that the review information viewed by consumers on social networks has a greater influence on trust than the reviews viewed on seller platforms. There may be three reasons for this phenomenon. First, because the providers of review information in the social network
are more closely related to consumers, their opinions are more easily accepted. As revealed by other researchers, they may have the same hobbies or behavioural characteristics with consumers because they are in the same social circle (Beldad et al., 2010; G. Cui et al., 2014; Xu, 2014; F. Zhu & Zhang, 2010). That is why other people’s consumption experience is more likely to influence consumers’ potential behaviours. Second, in social activities, people often like to make similar behavioural decisions by acquiring popular products and/or those used by their friends because of the bandwagon or herd effect (D’Harrison McKnight et al., 2002; Newman, 2003; Y. D. Wang & Emurian, 2005). Relevant information disseminated in social networks aggravates this phenomenon (Wu & Chen, 2005). Through social media, consumers are more quickly and more fully aware of the experience of shopping and product use by their idols or friends, thereby further influencing their propensity to trust and make decisions. Finally, most current studies indicate that the review information of other consumers displayed on the online store of the seller can influence consumers’ decisions (Cheung et al., 2008; G. Cui et al., 2014; Wu & Chen, 2005). However, unlike social networks, the online store is controlled by the seller, so consumers may be concerned about the truthfulness and reliability of seller-based review information; meaning, their trust is affected to some extent. It is noteworthy that this research does not claim that review information from the seller-based channels can cannot influence consumer trust at all, but it does prove that the same review information has a greater influence on consumer trust in the social network environment than on the seller-based channel.

Moreover, through further analysis, we also found that there is no significant difference between the review information on an agent-based channel and a SNS-based channel as far as their influence on consumer trust is concerned. In our opinion, the possible reason for the this phenomenon is that the two channels are beyond the control of sellers and can reflect the true thoughts of other consumers. Although the review information displayed on third-party platforms is not like online reviews in the social network, which are provided by people that have close ties with the consumers, third-party platforms still have an enormous influence on consumer trust because they can offer a myriad of information
in a professional manner (E. Kim & Tadisina, 2005). For example, according to the related research of Dan J. Kim et al. (2008), the larger the number of online reviews, the greater the chance that consumers can find valuable information from them. A large number of reviews are also helpful for consumers to understand the product more fully and then make more rational decisions.

6.5.2 Theoretical Contribution

In recent years, with increased interest in online reviews and the advent of new social networks, researchers have begun to focus on the influence of online reviews on consumer behaviour in the internet environment. Generally, our research has made the following contributions:

First, considering the inconsistency of previous research on the environment and the definition of the online review, this research re-examines the concept of the online review.

Second, although many studies indicate the influence of review information on consumer behaviour in different environments, few have noted the different channels of online review information (Ma & Song, 2011; Xu, 2014; F. Zhu & Zhang, 2010). Based on previous research, this chapter discussed in detail the channels of review information available to consumers and made their differences clear.

Third, we have conducted an in-depth comparison of online reviews from different channels. Past research has paid attention to examining the influence of review information on consumer behaviour while ignoring the difference in trust behaviour caused by review information from different channels (Cheung et al., 2008; Corbitt et al., 2003; G. Cui et al., 2014). This research, however, does reveal the different degrees of influence of review information from different channels on consumer trust, and that the difference is significant. Accordingly, the research results encourage scholars to consider the complex influence of different channels when investigating the influence of online reviews on consumers.
6.5.3 Practical Implications

This research provides three important reference opinions to practitioners in corresponding industries. First, consumers’ perceptions of the seller can be effectively enhanced by presenting reviews from other consumers and thus further influencing their trust-based decisions. Furthermore, the research results show that sellers should not only attach importance to the review information given by consumers in their own online stores, but also pay ample attention to consumers’ reviews from other channels, including third-party platforms and social network. Due to the diversity of channels for information release and dissemination, practitioners in the online sales industry should pay reasonable attention to all kinds of review information from different channels. Only in this way can we effectively enhance consumer trust from all aspects.

Second, this research provides guidance for practitioners in handling online review information from different channels. The research results reveal that the review information from social networks (SNS-based channels) and third-party platforms (agent-based channels) has the greatest influence on consumers’ trust. Online sellers should always prioritise review information from social networks and third-party platforms because online reviews from these two channels can influence consumers the most, and are most effective at building trust between potential customers and the sellers.

Finally, sellers should, whenever possible, adopt a trust rating system or platform provided by third-party companies. This is because, as the experiment results indicate, consumers have a higher degree of trust in review information posted on agent-based channels, which is more likely to influence consumers’ trust intentions and corresponding behavioural decisions.

6.6 Limitations and Research Directions

The following limitations need to be improved in future research: First, this research sorts the review information perceived by consumers into different channels. Although the
mechanism for this classification has been explored in previous studies, there still may be more effective ways to classify such channels. Therefore, in future studies, researchers should try to use different theories as guidance and carry out more useful explorations and discussions of the acquisition of review information.

Second, this research constructed online travel websites to test the influence of review information from different channels on consumer trust. However, other types of products, such as digital products, apparel and audio-visual products, should also be considered in future research because the influence of online reviews from different channels on trust may vary for different types of products and services.

6.7 Conclusion

In light of the virtual and anonymous nature of the e-commerce environment, trust plays an indispensable role. The online review is an important influencing factor for consumers’ trust behaviours and shopping intentions. In order to better understand its influence mechanism on consumers’ trust intentions, based on related research, this chapter summarised the definitions of the online review and then discussed in detail the meaning of an online review channel, as well as the different channels themselves. Moreover, with the experiment method and by using PLS-MGA data analysis, this chapter substantiated that online reviews perceived by consumers from different channels significantly differ in influence, and further demonstrated the existence of heterogeneity. The research results show that consumers have a higher degree of trust in the review information from independent, agent-based channels. The review information from SNS-based channels has the most obvious influence on consumer behaviour. This is because, on the one hand, the information from these two channels is out of the control of sellers and thus is more independent and trustworthy in the eyes of consumers; on the other hand, the review information from SNS-based channels is often published by people who are close to the consumers, such as family members, friends and idols, so it is easier to attract consumers’ attention and have the information resonate with them, thus exerting an important influence on
their trust behaviours. This research takes one small step towards understanding the reg-
ulATORY role of online reviews seen by consumers on different channels, but its findings
benefit both researchers and practitioners.
The previous two chapters noted that the quality and channels of information can significantly influence online reviews perceived by consumers and have regulating effects on their influence on trust intentions. The results of the data analysis indicate that consumers are more willing to trust review information from SNSs. Moreover, consumers obtain more and more online review information from SNSs because they are becoming increasingly popular in recent years. SNSs can not only enhance consumers’ ability to acquire information, but also help them reduce uncertainties and risks in online shopping. In this study, with the TPB and the Three-Dimensional Integrated Trust Model as the theoretical underpinnings, we try to identify relevant factors and framework systems that influence the helpfulness of online consumer reviews in the SNS environment; that is, the accuracy, completeness, currency and format of information and the trustworthiness of reviewers. The results of the analysis of 150 data samples after applying PLS-SEM indicate that accuracy and completeness of information are the most influential factors, while currency has no significant influence on helpfulness. This research extends the application of online review helpfulness in the SNS environment and therefore can be used as a reference for enterprises’ online marketing efforts.

7.1 Introduction

The advance of information technology is enabling consumers to share their experience and comments on products or services in the form of online reviews, thus helping potential consumers to reduce uncertainties and risks in online shopping decisions (Ye et al., 2011). The online review is defined as the positive or negative evaluation made by potential, current or previous consumers of the products or the enterprise, which can be
transmitted to public groups or organisations through the Internet. Existing research results show that online reviews have become an important source of access to consumers for reliable information of experience of consumption and use, and an effective means used by consumers for control of risks (Banerjee et al., 2017). They can influence consumers’ trust behaviours and shopping decisions (N. Hu et al., 2008).

Given that online reviews can effectively influence consumers’ behavioural intentions and further product sales, it is essential to understand the influence and mechanisms of online reviews and facilitate the widespread sharing of online review information (Z. Zhang et al., 2010; F. Zhu & Zhang, 2010). Meanwhile, e-commerce enterprises also actively take advantage of online reviews to devise new online marketing strategies. However, a large number of online reviews are posted in the online shopping environment and consumers are unable to process so much information. This may lead to information overload, increase consumers’ cognitive cost and further reduce their decision-making efficiency (Banerjee et al., 2017; Z. Liu & Park, 2015). Therefore, researchers and practitioners must have a good understanding of how consumers identify and make judgments regarding the helpfulness of online reviews.

Both researchers and practitioners have explored how to acquire helpful online reviews on e-commerce platforms (e.g. Taobao.com, Amazon.com) and proposed some feasible feedback mechanisms regarding useful information (Duan et al., 2008). Related empirical research also points out that helpful online reviews can provide more valuable information to consumers and be conducive to consumers’ construct of corresponding behavioural intentions (Chevalier & Mayzlin, 2018). On the other hand, the popularisation and application of Web 2.0, especially the booming SNSs, allow consumers to share review information in the vast social network beyond the limitation of time and space, and facilitate information exchange and communication (Filieri, 2015; Senecal & Nantel, 2004). In this research, the SNS-based online review is defined as the opinion and perception of products, shopping experiences and enterprises posted by consumers in social media networks, forums, blogs, microblogs and instant messaging tools. The perception of
consumers is either positive or negative, and it derives from their personal experience or the experience of others (such as family members, friends or colleagues).

Compared with the other online review, the SNS-based online review reflects that the information of the consumer’s review is transferred from the publisher to the receiver in different ways. The differences among them are: the evaluation information in the SNS is mainly spread directly in the social circle of the commentator without the help or handling of the enterprise. It is easier for the consumers to obtain true and detailed review information. But although SNS-based online reviews make it easier for consumers to access relevant information, it is difficult for them to process and identify helpful information. The influencing factors of online reviews in review platforms such as Yelp and sales platforms such as Amazon have been indicated by existing studies, but identification of helpful information in an SNS environment is still a gap that needs to be filled (Filieri, 2015; Pan & Zhang, 2011). This research attempts to answer the following question:

Which factors influence the helpfulness of online reviews in the SNS environment?

In order to answer this question, we adopted the general idea of the TPB and the Three-Dimensional Integrated Trust Model (Ajzen, 1991; C. Cao & Yan, 2014). We examined five types of important factors that influence the helpfulness of online reviews in the SNS context, namely, the trustworthiness reflected by information publishers and the accuracy, completeness, currency and format of information perceived by information recipients. With 221 samples obtained by random sampling and analysed quantitatively using PLS-SEM, this research reveals relevant factors that influence the helpfulness of online reviews perceived by consumers in SNSs and compares the influence of different factors on the helpfulness, so as to better understand the operation mechanism. The research results not only fill the gap, but are also helpful for practitioners to develop more effective online marketing strategies.

The structure of this chapter is organised as follows: First of all, a literature review is conducted to expound and summarise online reviews, SNS and information helpfulness.
Then, based on the TPB and the Three-Dimensional Integrated Trust Model (Ajzen, 1991; C. Cao & Yan, 2014), we put forward a research framework for online review helpfulness and made the corresponding research hypotheses. Next, we designed a questionnaire with reference to existing literature, carried out an experiment and collected data for different influencing factors of online review helpfulness. Afterwards, the hypotheses were tested by using PLS-SEM on a sample size of 221, and the research framework was evaluated. Finally, we offer our conclusions and the theoretical and practical significance of this research. Of course, the limitations of this research and the focal points for future research are also explained in this chapter.

7.2 Literature Review

As the research on the influencing factors of online shopping goes deeper, studies show that online reviews have an important influence on consumers’ building of their trust in sellers and are also a key influencing factor for consumers’ shopping intention (Chevalier & Mayzlin, 2018). For example, many empirical research results indicate that online reviews have a more significant influence on consumers’ online trust intentions and even shopping decisions than traditional promotions and commercials (G. Cui et al., 2014; Dellarocas et al., 2007). This is mainly because in the minds of potential consumers, online reviews from other consumers are the expression of their most natural and truest comments on goods or services as related to enterprises, without any business intervention (Z. Liu & Park, 2015; F. Zhu & Zhang, 2010). Therefore, online reviews enjoy a high acceptance level, consumers easily believe in their content and thus their decision-making behaviour is affected.

Online reviews are generally very subjective, so consumers have to make a conjecture about whether these reviews are reasonable and helpful, and must take into account opinions from different viewpoints or sometimes even conflicting opinions (Filieri, 2015). Consumers need to analyse, compare and judge the myriad of reviews and screen out helpful information as a reference for future behaviours and decisions. In order to
accurately understand the helpfulness of online reviews, related studies have pointed out relevant factors that possibly influence their helpfulness (B. Fang et al., 2016; H. Hong et al., 2017). For example, some research indicates that the disclosure of reviewers’ identities and the sufficient review content may improve the helpfulness of information perceived by consumers and enhance their trust (Z. Liu & Park, 2015). Moreover, according to related research, the reviewers’ reputations and professionalism may significantly influence the helpfulness of online reviews (Banerjee et al., 2017). Also, online sales platforms often provide a peer review system, which enables consumers to vote for helpful information as reference for other potential consumers (Y. Liu et al., 2013). For example, Amazon provides the usefulness evaluation of reviews of online products and ranks the reviews according to the proportion of votes each review receives for its helpfulness. The reviews with more supporting votes rank higher. By presenting helpful information, it is not only helpful for consumers to make a shopping decision; it can also build up their confidence in their shopping decision (Mudambi & Schuff, 2010).

Looking back to recent studies, a lot of attention has been devoted to the influence of online reviews on consumers’ decision-making process and how to measure their helpfulness (Banerjee et al., 2017; Filieri, 2015; H. Hong et al., 2017; Z. Liu & Park, 2015; Mudambi & Schuff, 2010). However, previous studies tend to focus on decisive factors that influence consumers’ perception of the information helpfulness on online shopping and review platforms. Due to the widespread use of SNSs, consumers are not confined to sharing their shopping experience in the traditional online environment, but have wide-ranging discussions and exchanges on products and services on different platforms (H. Hong et al., 2017). For example, consumers may share their opinion of some product or service to their circle in Facebook, such as relatives, colleagues and friends, as shown in Figure 6.4 in Chapter 6. This way of sharing reviews makes it easier to generate interaction and resonance. Because online reviews from this type of source need no assistance and circulation from other organisations, it is easier for consumers to acquire truthul and reliable review information (C. Cao & Yan, 2014). In addition, social relations in the SNS are generally closer—they are not unfamiliar consumers—so online reviews in the SNS
environment have a stronger influence on consumers’ trust intentions and shopping decisions (Utz et al., 2012). In any case, although social media are ubiquitous, it is unclear how consumers identify and judge helpful information from an SNS. Therefore, from the consumers’ perspective, this research attempts to understand the various factors that influence the helpfulness of online reviews in the SNS environment and the degree of their influence.

7.3 Theoretical Foundation and Hypotheses Development

7.3.1 Theoretical Foundation

As indicated by the TPB, under normal circumstances, consumers’ decisions are controlled by their own will, and are rational (Ajzen, 1991). When they have time to think over their own behaviours, the behavioural intention is the best way to examine their behaviours. To be specific, consumers’ trust behaviours and shopping decisions in the online shopping environment are often restricted by time, money, information and personal ability, so their behavioural intention is often influenced by other factors. Chapter 4 further pointed out that consumers’ personal attitude, online reviews and TTPs are three main factors that can influence behavioural intentions in an online environment. Taking online trust as an example, consumers have strong trust intentions when their trust attitude is more active, online reviews are more positive and the support from TTPs is stronger, and vice versa (C. Cao & Yan, 2014; C. Cao et al., 2016).

Based on the above theory, SNS-based online reviews are affected by the social pressure perceived by consumers in the behavioural decision-making process. They reflect the influence on consumers’ decisions by other people (e.g. consumers’ family members, colleagues, friends or other consumers) or groups (e.g. rating enterprises, well-known groups in related fields, consumer protection organisations, etc.). However, their effectiveness is in turn affected by the helpfulness of the information they provide.
7.3.2 Research Framework and Hypotheses

Generally, the SNS-based online review does not exist independently in the online shopping environment. It mainly involves two different parties: information providers (reviewers) and information recipients (potential consumers browsing the review). In view of these two parties, this research argues that the influencing factors that determine the helpfulness of online reviews in the SNS environment are mainly divided into two categories: trustworthiness of reviewers and information quality perceived by consumers, as shown in Figure 7.1.

![Research Framework](image)

**Figure 7.1 Research Framework**

Trustworthiness refers to the seniority or rating of reviewers in offline or in the online environment; it reflects the professional ability and specialty of reviewers (Banerjee et al., 2017). Highly trustworthy reviewers often have deeper knowledge and information of relevant products or services (Xu, 2014). In an SNS environment, highly trustworthy reviewers are also more willing to actively participate in discussions and share information with other consumers, so their opinion is more easily accepted and adopted by other consumers. As pointed out by previous studies, the trustworthiness of reviewers can significantly enhance consumers’ understanding of the helpfulness of relevant information and further influence their decisions. In light of the places the review information is posted, reviews in SNS environments are different from information provided in other online shopping platforms. We still hold the opinion that consumers tend to accept highly
trustworthy reviews when they browse online reviews in the SNS because they believe that such information is more helpful and reliable. Accordingly, we propose the hypothesis that:

**Hypothesis 1.** The trustworthiness of reviewers has a positive influence on consumers’ perceived helpfulness of SNS-based online reviews.

Online reviews are an important source for consumers to access information about products and services (Pan & Zhang, 2011). According to previous studies, the degree of consumer acceptance can be materially influenced by the information quality (Z. Zhang et al., 2010). In other words, the information quality of these reviews can significantly influence consumers’ judgment about their helpfulness. Some researchers believe that information quality depends on the particularity of online reviews describing a product, service or shopping experience (H. Hong et al., 2017). Others argue that the truthfulness and reliability of review content, the relevance to products and sufficiency of information are important criteria for judging information quality (Y. Liu et al., 2013). Empirical studies indicate that information quality is an important factor that consumers use to measure the helpfulness of online reviews in online sales platforms (Filieri, 2015; H. Hong et al., 2017). High-quality review content is objective and concrete, with sufficiently supported arguments, but low-quality review content is subjective and abstract, without detailed and logical analysis (Filieri, 2015; Korfiatis et al., 2012; Krumpal, 2013; Y. Liu et al., 2013).

Information quality is a complex and abstract concept that researchers try to explain from different perspectives. These include several different factors, such as the length of reviews, the clarity of the information and the professionalism of the content (Ajzen, 1991). However, due to the differences between SNSs and traditional e-commerce channels, this research aims to re-investigate the influencing factors of information quality in the SNS environment. To this end, based on Wixom and Todd (2005), the quality evaluation method of information systems and according to the characteristics of SNSs, this research proposes the following four indicators: accuracy, completeness, currency and format of information.
Accuracy measures the degree of accuracy of the reviews of the product or service as reflected by the online review information. Since online reviews in the SNS contain not only reviews of the service or product, but also the information involving different aspects of the consumers’ life, work and communication, whether the review information is accurate and reliable and closely related to the shopping experience can influence the perception of the helpfulness of the information (B. Fang et al., 2016; Korfiatis et al., 2012). This leads us to the second hypothesis:

**Hypothesis 2.** *Accuracy has a positive influence on consumers’ perceived helpfulness of SNS-based online reviews.*

Completeness refers to the extent to which all the necessary information is provided in online reviews. In the content published in the SNS, consumers are generally more willing to share their life stories, attitude and experiences. When mentioning their shopping experience, whether the information content is complete, clear and sufficient will significantly influence others’ judgment of the helpfulness of this information (Korfiatis et al., 2012; Ye et al., 2011). As such, we speculate that:

**Hypothesis 3.** *Completeness has a positive influence on consumers’ perceived helpfulness of SNS-based online reviews.*

Currency measures the difference between the time reviewers post online reviews and when consumers read them. When consumers browse up-to-date online reviews, they may feel that these reviews represent the quality of the latest product and service and therefore it is easier for them to predict what they might encounter during shopping (B. Fang et al., 2016; Filieri, 2015; Z. Liu & Park, 2015). Consequently, we hypothesise that:

**Hypothesis 4.** *Currency has a positive influence on consumers’ perceived helpfulness of SNS-based online reviews.*

Format represents consumers’ opinions of the effect of information presentation. As pointed out by previous studies, whether the way online reviews are presented is convenient for consumers to read or is presented in a disorganised manner influences consumers’
judgment regarding the helpfulness of such information (B. Fang et al., 2016; Y. Liu et al., 2013). However, due to the diversity of manifestations of online reviews propagated in SNSs, such as short messages on Twitter, reviews on Facebook, videos on YouTube and conversations between friends on WeChat, this research holds the opinion that:

**Hypothesis 5.** Format has a positive influence on consumers’ perceived helpfulness of SNS-based online reviews.

### 7.4 Research Methodology

#### 7.4.1 Measurement Development

The questionnaire for this research was designed by referring to scales from related studies and then making modifications and adjustments pursuant to the characteristics of SNS-based online reviews. All questions in the initial questionnaire (except the basic information, such as demographic identification) are measured by a 7-point Likert scale ranging from 1 to 7, with 1 indicating “strongly disagree” and 7 indicating “strongly agree”. After the initial questionnaire design was completed, a small-scale pre-test was conducted in the relevant field. A total of 30 questionnaires were collected to test whether the semantic and grammatical expressions of each question were easily comprehensible and whether the reliability and validity met the requirements. Subsequently, partial expressions of the questionnaire were amended according to feedback from respondents, and finally the formal questionnaire was finalised.

#### 7.4.2 Sampling and Data Collection

The questionnaires were distributed online through Qualtrics.com. A total of 241 questionnaires were collected. After eliminating those answered in a very short period or those with too many similar answers, 221 valid samples remained. Since this section of the study mainly focuses on the determinants of online reviews in the SNS context, it was unnecessary to worry about data collection from non-netizens. The commonly used 10
times rule was used to determine the PLS-SEM sample size (Chin & Newsted, 1999). In accordance with this rule, the minimum sample size required for this research is 50 (Chin & Newsted, 1999). The accuracy of PLS-SEM evaluation can be effectively enhanced by 221 samples collected by this research.

### 7.4.3 Data Analysis

PLS-SEM has few restrictions over the experimental data; for example, the PLS-SEM still has very good explanatory power even with a small sample size (Chin & Newsted, 1999). Also, PLS-SEM does not require a normal distribution of data (Chin & Newsted, 1999). In addition, this approach can easily handle the problem of the reflective and formative measurement model without identification (Chin et al., 2003). Therefore, we decided to utilise this method to evaluate the research framework and verify the related hypotheses.

The demographic characteristics of respondents of the questionnaire are shown in Table 7.1. Among all the respondents, the ratio of male participants to female participants is 122:99, which is an even distribution. In terms of the age structure, 76% of respondents fall into the 18–39 age group. The samples also show that most respondents are well educated and about 75% of them have at least a bachelor’s degree. Although the sample population is relatively concentrated in terms of age and educational background, it is also consistent with the overall characteristics of the online shopping population in Australia to some extent (Wan, Nakayama, & Sutcliffe, 2012). The online shopping population is mainly concentrated in the age group of 25–44, and the more highly educated they are, the more they tend to participate in online shopping (Wan et al., 2012).

<table>
<thead>
<tr>
<th>Measure</th>
<th>Category</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>122</td>
<td>55%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>99</td>
<td>45%</td>
</tr>
<tr>
<td>Age</td>
<td>18-29</td>
<td>128</td>
<td>58%</td>
</tr>
</tbody>
</table>

Table 7.1 Demographic Profile of Respondents (N=221)
7.5 Results

7.5.1 Model Assessment

The research framework was evaluated with PLS-SEM. First of all, we evaluated the measurement model, that is, the relationship of measurement items and latent variables. Then, the structural model was evaluated with a view to evaluate the relationship between different latent variables in the research framework. Table 7.2 shows the measurement statistics of construct scales based on reflective indicators.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Mean</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
<th>Standard Deviation</th>
<th>Excess Kurtosis</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Help.1</td>
<td>6.109</td>
<td>6.000</td>
<td>4.000</td>
<td>7.000</td>
<td>0.855</td>
<td>0.293</td>
<td>-0.868</td>
</tr>
<tr>
<td>Help.2</td>
<td>6.118</td>
<td>6.000</td>
<td>4.000</td>
<td>7.000</td>
<td>0.843</td>
<td>0.341</td>
<td>-0.866</td>
</tr>
<tr>
<td>Help.3</td>
<td>6.109</td>
<td>6.000</td>
<td>4.000</td>
<td>7.000</td>
<td>0.844</td>
<td>0.292</td>
<td>-0.846</td>
</tr>
<tr>
<td>Form.1</td>
<td>4.751</td>
<td>5.000</td>
<td>2.000</td>
<td>7.000</td>
<td>1.397</td>
<td>-0.297</td>
<td>-0.069</td>
</tr>
<tr>
<td>Form.2</td>
<td>4.751</td>
<td>5.000</td>
<td>1.000</td>
<td>7.000</td>
<td>1.448</td>
<td>-0.256</td>
<td>-0.180</td>
</tr>
<tr>
<td>Form.3</td>
<td>4.765</td>
<td>5.000</td>
<td>2.000</td>
<td>7.000</td>
<td>1.407</td>
<td>-0.385</td>
<td>-0.056</td>
</tr>
<tr>
<td>Accu.1</td>
<td>3.729</td>
<td>4.000</td>
<td>1.000</td>
<td>7.000</td>
<td>1.311</td>
<td>-0.388</td>
<td>-0.154</td>
</tr>
<tr>
<td>Accu.2</td>
<td>3.706</td>
<td>4.000</td>
<td>1.000</td>
<td>6.000</td>
<td>1.311</td>
<td>-0.439</td>
<td>-0.170</td>
</tr>
<tr>
<td>Accu.3</td>
<td>3.715</td>
<td>4.000</td>
<td>1.000</td>
<td>6.000</td>
<td>1.292</td>
<td>-0.432</td>
<td>-0.203</td>
</tr>
<tr>
<td>Curr.1</td>
<td>2.149</td>
<td>2.000</td>
<td>1.000</td>
<td>4.000</td>
<td>0.862</td>
<td>-0.328</td>
<td>0.476</td>
</tr>
<tr>
<td>Curr.2</td>
<td>2.176</td>
<td>2.000</td>
<td>1.000</td>
<td>5.000</td>
<td>0.932</td>
<td>-0.237</td>
<td>0.518</td>
</tr>
<tr>
<td>Curr.3</td>
<td>2.208</td>
<td>2.000</td>
<td>1.000</td>
<td>4.000</td>
<td>0.899</td>
<td>-0.546</td>
<td>0.406</td>
</tr>
<tr>
<td>Trus.1</td>
<td>5.145</td>
<td>5.000</td>
<td>3.000</td>
<td>7.000</td>
<td>1.010</td>
<td>-0.519</td>
<td>-0.772</td>
</tr>
</tbody>
</table>
7.5.2 Measurement Model

In this research, internal consistency reliability is used to test the reliability of the measurement of all constructs. In Table 7.3, the Composite Reliability and Cronbach’s $\alpha$ of all constructs are larger than 0.7, indicating that the measurement has a good internal consistency reliability (Fornell & Larcker, 1981).

Table 7.3 Descriptive Statistics for the Constructs

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Items</th>
<th>CR</th>
<th>CA</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helpfulness (Help)</td>
<td>3</td>
<td>0.967</td>
<td>0.979</td>
<td>0.938</td>
</tr>
<tr>
<td>Trustworthiness (Trus)</td>
<td>3</td>
<td>0.976</td>
<td>0.984</td>
<td>0.954</td>
</tr>
<tr>
<td>Accuracy (Accu)</td>
<td>3</td>
<td>0.987</td>
<td>0.991</td>
<td>0.974</td>
</tr>
<tr>
<td>Completeness (Comp)</td>
<td>3</td>
<td>0.993</td>
<td>0.995</td>
<td>0.986</td>
</tr>
<tr>
<td>Currency (Curr)</td>
<td>3</td>
<td>0.961</td>
<td>0.974</td>
<td>0.925</td>
</tr>
<tr>
<td>Format (Form)</td>
<td>3</td>
<td>0.987</td>
<td>0.991</td>
<td>0.975</td>
</tr>
</tbody>
</table>

Note: Cronbach’s $\alpha$ (CA), Composite Reliability (CR), Average Variances Extracted (AVE).

The validity of constructs is mainly assessed by content validity, convergent validity and discriminant validity. The scale used here is adapted from existing literature and therefore has good content validity. In Table 7.4, the standardised outer loadings of all measurement indicators in their respective constructs are greater than 0.708, and the AVE of constructs are larger than 0.5 in Table 7.3. Therefore, the constructs have good convergent validity (Chin et al., 2003). In Table 7.5, the mean square root of AVE of any construct is larger than the corresponding correlation values with other constructs. Moreover, as shown in Table 7.4, the standardised outer loadings of all measurement indicators in their respective

---

Note: Help - Helpfulness; Trus - Trustworthiness; Accu - Accuracy; Comp - Completeness; Curr - Currency; Format - Form.
constructs are larger than their cross-loadings. These indicate that the measurement of all constructs has sufficient discriminant validity (Chin & Newsted, 1999; Fornell & Larcker, 1981).

Table 7.4 Factor Loadings and Cross-loadings

<table>
<thead>
<tr>
<th></th>
<th>Accu.1</th>
<th>Comp.1</th>
<th>Curr.1</th>
<th>Form.1</th>
<th>Help.1</th>
<th>Trus.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accu.1</td>
<td>0.989</td>
<td>0.097</td>
<td>0.147</td>
<td>0.202</td>
<td>0.375</td>
<td>0.195</td>
</tr>
<tr>
<td>Accu.2</td>
<td>0.986</td>
<td>0.114</td>
<td>0.147</td>
<td>0.196</td>
<td>0.380</td>
<td>0.188</td>
</tr>
<tr>
<td>Accu.3</td>
<td>0.986</td>
<td>0.083</td>
<td>0.128</td>
<td>0.215</td>
<td>0.376</td>
<td>0.215</td>
</tr>
<tr>
<td>Comp.1</td>
<td>0.106</td>
<td>0.994</td>
<td>0.248</td>
<td>-0.404</td>
<td>0.693</td>
<td>0.044</td>
</tr>
<tr>
<td>Comp.2</td>
<td>0.103</td>
<td>0.993</td>
<td>0.226</td>
<td>-0.386</td>
<td>0.683</td>
<td>0.063</td>
</tr>
<tr>
<td>Comp.3</td>
<td>0.086</td>
<td>0.993</td>
<td>0.235</td>
<td>-0.418</td>
<td>0.672</td>
<td>0.043</td>
</tr>
<tr>
<td>Curr.1</td>
<td>0.156</td>
<td>0.226</td>
<td>0.976</td>
<td>-0.411</td>
<td>-0.051</td>
<td>-0.654</td>
</tr>
<tr>
<td>Curr.2</td>
<td>0.143</td>
<td>0.211</td>
<td>0.955</td>
<td>-0.434</td>
<td>-0.036</td>
<td>-0.641</td>
</tr>
<tr>
<td>Curr.3</td>
<td>0.094</td>
<td>0.259</td>
<td>0.954</td>
<td>-0.454</td>
<td>-0.027</td>
<td>-0.649</td>
</tr>
<tr>
<td>Form.1</td>
<td>0.207</td>
<td>-0.402</td>
<td>-0.438</td>
<td>0.991</td>
<td>0.074</td>
<td>0.730</td>
</tr>
<tr>
<td>Form.2</td>
<td>0.205</td>
<td>-0.393</td>
<td>-0.446</td>
<td>0.990</td>
<td>0.085</td>
<td>0.738</td>
</tr>
<tr>
<td>Form.3</td>
<td>0.200</td>
<td>-0.410</td>
<td>-0.430</td>
<td>0.982</td>
<td>0.055</td>
<td>0.711</td>
</tr>
<tr>
<td>Help.1</td>
<td>0.364</td>
<td>0.680</td>
<td>-0.056</td>
<td>0.075</td>
<td>0.975</td>
<td>0.425</td>
</tr>
<tr>
<td>Help.2</td>
<td>0.359</td>
<td>0.648</td>
<td>-0.032</td>
<td>0.083</td>
<td>0.966</td>
<td>0.416</td>
</tr>
<tr>
<td>Help.3</td>
<td>0.386</td>
<td>0.669</td>
<td>-0.035</td>
<td>0.060</td>
<td>0.965</td>
<td>0.396</td>
</tr>
<tr>
<td>Trus.1</td>
<td>0.224</td>
<td>0.033</td>
<td>-0.666</td>
<td>0.744</td>
<td>0.428</td>
<td>0.981</td>
</tr>
<tr>
<td>Trus.2</td>
<td>0.174</td>
<td>0.044</td>
<td>-0.653</td>
<td>0.720</td>
<td>0.400</td>
<td>0.974</td>
</tr>
<tr>
<td>Trus.3</td>
<td>0.191</td>
<td>0.071</td>
<td>-0.653</td>
<td>0.696</td>
<td>0.418</td>
<td>0.975</td>
</tr>
</tbody>
</table>

Note: Boldface values indicate outer loading on the assigned constructs.

Table 7.5 Correlations among Constructs and the Square Root of the AVE

<table>
<thead>
<tr>
<th></th>
<th>Accu</th>
<th>Comp</th>
<th>Curr</th>
<th>Form</th>
<th>Help</th>
<th>Trus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accu</td>
<td>0.987</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp</td>
<td>0.099</td>
<td>0.993</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curr</td>
<td>0.142</td>
<td>0.238</td>
<td>0.962</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>0.207</td>
<td>-0.405</td>
<td>-0.444</td>
<td>0.987</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help</td>
<td>0.382</td>
<td>0.687</td>
<td>-0.042</td>
<td>0.075</td>
<td>0.969</td>
<td></td>
</tr>
</tbody>
</table>
Note: Boldface values represent the square roots of the AVEs.

### 7.5.3 Structural Model

By bootstrapping in SmartPLS 3.2.7, the *t*-test of significance was conducted for the model path coefficient, as shown in Table 7.6. The original number of samples is 221, and pursuant to the general practice in PLS-SEM research, this research set the bootstrap subsamples as 5000. The path coefficient and the significance test results are shown in Figure 7.2. Of five hypotheses proposed in this research, four have passed the significance test. The results of the empirical research show that the accuracy, completeness and format of information and the trustworthiness of reviewers have a significant influence on consumers’ perception of the helpfulness of online reviews in the SNS environment. Furthermore, this research also indicates that the currency of information has no significant influence on consumers’ perception of the helpfulness of online reviews. Finally, this research also finds that during consumers’ judgment of the helpfulness of information, the influence of different factors varies. The completeness of information is the most important factor, followed accuracy, format and trustworthiness.

#### Table 7.6 Significance Test

<table>
<thead>
<tr>
<th></th>
<th>Path Coefficient</th>
<th>Hypotheses</th>
<th><em>t</em>-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trustworthiness</td>
<td>0.177</td>
<td>H1</td>
<td>1.988 *</td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.248</td>
<td>H2</td>
<td>5.304 ***</td>
</tr>
<tr>
<td>Completeness</td>
<td>0.735</td>
<td>H3</td>
<td>11.440 ***</td>
</tr>
<tr>
<td>Currency</td>
<td>-0.060</td>
<td>H4</td>
<td>0.910 ns</td>
</tr>
<tr>
<td>Format</td>
<td>0.169</td>
<td>H5</td>
<td>2.704 **</td>
</tr>
</tbody>
</table>

Note: * Significant at the 0.05 level; ** significant at the 0.01 level; *** significant at the 0.001 level; ns – non-significant.
The coefficient of determination ($R^2$) is most often used for assessing the structural model and judging its predictability (Chin et al., 2003). The value of $R^2$ is within the range of 1 and 0; the higher the value, the better the predictability. In general, the explanatory power is moderate when $R^2$ is within the range of 0.5–0.75 and significant if it is larger than 0.75 (Chin et al., 2003). In this research, $R^2$ is 0.690 for the helpfulness of information perceived by consumers. The high level means that the model proposed here has good explanatory power.

7.6 Discussion and Implications

7.6.1 Summary of the Findings

With the popularisation and widespread use of SNSs, consumers have begun to share and actively discuss their experience of online shopping on various social networks (Senecal & Nantel, 2004; Utz et al., 2012). In the business environment, enterprises are also starting to use social media to facilitate communication with potential consumers and to work towards potential deals (Chevalier & Mayzlin, 2018; N. Hu et al., 2008). Previous research has identified possible factors that influence consumers’ perceived helpfulness of information and demonstrated that helpful information has a more profound influence on consumers’ decision making. However, such studies mainly focus on the influence on consumer behaviour by online reviews in online sales and review platforms. Due to the differences between SNSs and those online environments, it is necessary to revisit the influencing factors that determine consumers’ perceived helpfulness. According to the
analysis results of 221 samples data by PLS-SEM, this research presents the following points:

First, from the data analysis results, the completeness of online review information in the SNS environment is the most important criterion for consumers to measure whether the information is helpful. For consumers, online reviews can provide reliable information for their behavioural decisions. Therefore, they need review information that can completely and comprehensively describe the shopping experience. This requires that the review information cannot simply give conclusions or suggestions, but explain and describe the consumption process and experience in detail (Filieri, 2015; Senecal & Nantel, 2004; Utz et al., 2012). In addition, it should be noted that completeness does not mean providing every single detail; the information description should be reasonable. For example, when consumers share their opinions of a product in their social circle, they should give a comprehensive description of the background and circumstances leading to this review. Only this kind of review is helpful in the eyes of other consumers.

Second, the accuracy of information is also an important criterion for consumers to assess online reviews. There is a clear difference between online reviews in the SNS environment and those in a traditional environment. The posting and maintenance of the review information in the SNS environment is done by consumers themselves and the content is often random (C. Cao & Yan, 2014). Therefore, when consumers read the review, its information needs to be accurate and complete, so that consumers can extract reliable information to help them make decisions.

Third, the presentation of information, that is, the format, has a significant influence on the effectiveness of information. As stated above, information in the SNS environment can be presented in various forms, such as pictures, videos and texts. Different forms of presentation have significantly different effects on information transmission. Due to the development of information technology, consumers can display information by a wealth of means, such as a combination of pictures and text, to illustrate their past consumption experiences (B. Fang et al., 2016; Filieri, 2015; H. Hong et al., 2017). This is because
richer forms of presentation can relay an event in a more sufficient and detailed manner. For example, the product defect displayed in a graphic form is more direct and clearer than a textual description.

Fourth, as pointed out by other empirical studies, the trustworthiness of reviewers is an important factor that determines the helpfulness of the information (B. Fang et al., 2016; N. Hu et al., 2008; Xu, 2014). This also reflects the psychology that consumers are more likely to be influenced by celebrities or authority figures. Furthermore, it is interesting to note that trustworthiness is the least influential among all factors that have significant influence on the helpfulness of information. According to this research, the reason is that people in the SNS environment have closer relationships, with similar personalities, hobbies and behavioural characteristics. They are already familiar with each other, so trustworthiness makes no difference. When compared with other factors, this factor has no significant influence on information helpfulness.

Fifth, in view of the analysis results, the currency of the information has no significant influence on helpfulness as perceived by consumers. The reason for this is probably the particularity of the SNS environment. Although the information dissemination in SNSs is characterised by timeliness, it is undeniable that its spread is influenced by popularity. A hot topic is not necessarily a recent event; it may also be the widespread circulation of a rediscovered past occurrence.

Sixth, according to their influence on the helpfulness of online reviews, the factors rank in a descending order: completeness, accuracy, format and trustworthiness. This reveals that different factors have different degrees of influence on consumers with respect to the helpfulness of information. The completeness and accuracy of the review information are important criteria to measure whether a piece of information is helpful. The more complete the review information, the more accurate the description; the more background information consumers can obtain, the more information resources they have in the behavioural decision-making process. Also, it is relatively rare that one review can meet all of the four criteria for judging the helpfulness of information. When enterprises are
identifying helpful information, they should be purposeful, that is, they should follow the above order and sort out helpful information for achieving the most effective influence on consumers’ behaviour.

It is noteworthy that although having investigated the influencing factors of the information helpfulness perceived by consumers and explained the influence of these factors, this research does not make it clear whether the information content is negative or positive. Considering the influence on consumers’ behaviours, the former may reduce the behavioural intention, while the latter may facilitate behaviours.

7.6.2 Implications for Theory

Theoretically, first of all, this research enriches relevant literature on the helpfulness of online reviews. A lot of studies have explored the influencing factors of consumers’ perceived helpfulness, but there are seldom discussions about how to judge and identify helpful online reviews in the existing SNS environment. This research fills the gap and clarifies the factors that determine consumers’ perceived online review helpfulness in the SNS, as well as the influence of these factors.

Next, this research takes an important step towards understanding how consumers perceive the helpfulness of online reviews in the SNS environment. The results elaborate on the composition of the influencing factors and the degree of influence. These indicate a new direction for future research.

7.6.3 Practical Implications

From a practical point of view, the research results can help enterprises and consumers better screen out helpful online reviews and improve their decision-making efficiency. They can help enterprises develop an evaluation system for reviewing the helpfulness of online reviews by choosing the appropriate means according to their own unique characteristics.
From the perspective of enterprises, the research framework can serve as the primary means for evaluating consumers’ perception of the helpfulness of online reviews. It is beneficial for practitioners to master such knowledge because it can improve and enhance the influence of SNSs on consumers’ online shopping behaviours. To be specific, by offering helpful online reviews, enterprises can attract consumers, increase the time they stay on the website and improve the performance of online sales. Therefore, enterprises should not only strive to present helpful online reviews, but also encourage reviewers to enhance their trustworthiness and improve the quality of information they provide.

To sum up, this research provides a set of effective methods for enterprises to identify and judge the helpfulness of SNS-based online reviews and operable criteria for them to identify helpful online reviews. It also gives guidance to enterprises regarding what to prioritise when dealing with SNS-based online reviews with different characteristics. This is useful for enterprises to establish a better online feedback mechanism and enhance their relationship with consumers.

7.6.4 Limitations and Future Research

This research presents useful discussions of the factors that influence the helpfulness of online reviews in the SNS environment, but there are inevitably limitations that can be addressed in future studies. First, the data sample size is only 221. This meets the requirement by PLS-SEM for the minimum sample size, but a larger sample size can increase the accuracy of model testing and estimation (Chin & Newsted, 1999). Second, the empirical research does not take into account the regulatory effect of the product type to the helpfulness of information perceived by consumers. Currently some studies point out that different product types may change consumers’ judgment regarding the helpfulness of information (Banerjee et al., 2017; H. Hong et al., 2017). In other words, when faced with different types of products, due to the differences in risks, consumers may seek additional information to measure the helpfulness of online reviews. Therefore, in future research, the regulatory effects of the influencing factors of the helpfulness of information
perceived by consumers must be considered to further extend the research results.

7.7 Conclusion

As Internet technology advances, e-commerce plays an increasingly important role in our daily life (N. Hu et al., 2012). However, due to the virtuality of e-commerce and the spatiotemporal separation between buyers and sellers, consumers have to face greater uncertainties and risks than they do in traditional shopping channels (Chevalier & Mayzlin, 2018; G. Cui et al., 2014). It is precisely because of the emergence of online reviews, which provide a reliable source of information for decision-making, that consumers reduce risks in online shopping (Utz et al., 2012; Z. Zhang et al., 2010; F. Zhu & Zhang, 2010). Meanwhile, related studies also point out that only helpful online reviews have a significant influence on consumers’ behavioural intentions and decision-making (Y. Liu et al., 2013). On the other hand, with the continuous development of SNSs, more and more enterprises are using social media to narrow the distance between them and consumers (G. Cui et al., 2014). Consumers widely use SNSs as the channels for publication and dissemination of online review information. In the face of this new situation, an urgent problem is how to identify and judge helpful SNS-based online reviews. With this goal, based on the TPB and the Three-Dimensional Integrated Trust Model, and after a review of the relevant literature, this research summarises five factors that can influence the helpfulness of online reviews perceived by consumers in the SNS environment, namely, accuracy, completeness, currency, format of information and the trustworthiness of reviewers. In order to validate the proposed research framework and hypotheses, this research obtained 221 valid data samples by random sampling. Through PLS-SEM, this research identified the influencing factors of SNS-based online review helpfulness. The research results show that except for the insignificant influence of currency, the other four factors have a significant influence. Moreover, the completeness and accuracy of information play a dominant role in the process of identifying helpful information. The analysis of online reviews in the SNS environment reveals the factors that determine helpfulness and explains their mechanism. The research results fill the gap in the field of online
review helpfulness and expand the application scenarios of relevant theories, which are beneficial to both researchers and practitioners.
CHAPTER 8
THE EFFECTS OF DIFFERENT SERVICE OF TRUSTED THIRD PARTY

The previous chapters elaborate on the influence of online reviews on consumers’ trust intentions, as well as the regulating effects of the quality and channels of information. In the light of the new characteristics of the current information dissemination, the factors that influence the usefulness of review information viewed by consumers in the SNS environment are specifically investigated. Subsequent chapters of this thesis will focus on another important factor of the online trust model: the TTPs. Based on the literature review and combined with the development status and background of Australia’s e-commerce market, underpinned by the TPB and a conceptual trust model, this chapter explores the specific factors and influence mechanisms of TTPs on consumers’ trust behaviours. Also, this chapter explains two different functions of TTPs that can be used to solve the online trust problem faced by consumers. Meanwhile, this chapter proposes that an integrative service framework of a TTP should include the following five aspects: a payment service, a logistics & distribution service, a guarantee & insurance service, a certification service and a rating & recommendation service. The empirical results, obtained from a sample of 282 online shopping users, indicate that the above-mentioned five types of TTPs have a combined effect on the trust intentions and behaviour of consumers. Through building an integrative service framework of TTP, the level of consumer trust can be strengthened. When consumers think that enterprises use more services from TTPs, they are more likely to trust the enterprise; thus resulting in a positive influence by TTPs on trust behaviour.

8.1 Introduction

In the last few years, there has been a substantial increase in Internet penetration and the
digital presence of people. As the Internet is becoming more and more accessible, the online-driven lifestyle is having a far-reaching impact on consumer buying behaviour, thus resulting in a digital consumption surge. Over the past year, the e-commerce market has accumulated a staggering USD $1,672 trillion, which accounted for 7.3% of total global retail sales of USD $22,822 trillion (Chung, 2015). However, it is clear that the development of e-commerce is confronted with some challenges. In 2015, Australian Cybercrime Online Reporting Network (ACORN) reported losses of over USD $127 million due to e-commerce scams and lack of trust in the virtual market (Australian Competition and Consumer Commission, 2015). Meanwhile, researchers have also studied influencing factors of success in e-commerce, and their results indicate that the primary factor hampering the success and further growth of e-commerce is a lack of trust (Gefen et al., 2003b; Kiernan et al., 2002). Recent studies also arrive at similar conclusions (Y. Fang et al., 2014; Guan & Lala, 2017; Dan J. Kim et al., 2008).

In the industry, many TTPs appear to solve the issue of consumer trust in online shopping. These TTPs provide support for success of online transactions via different technical means and intermediary services (Benassi, 1999; Dan J. Kim et al., 2008). For example, VeriSign secures consumers’ online transactions and TRUSTe provides a privacy seal to demonstrate companies’ compliance with their commitment to privacy protection, thus effectively addressing users’ concerns about their privacy. Meanwhile, researchers have conducted a lot of studies on the role and effects of trust and TTP, as well as its constitutive factors, which indicate that the role of trust is reflected in enhancing perception of possibility of expected behaviour, increasing the predictability of behavioural outcome, decreasing transaction cost and lessening opportunistic behaviours. Furthermore, TTP can reduce uncertainties in partners, thus making the transaction relations more foreseeable and meeting needs (X. Hu et al., 2010; Kiernan et al., 2002; Dan J. Kim et al., 2008; Özpolaet al., 2013). As revealed by these research results, if a company can decrease uncertainty and prove online shopping to be trustworthy enough for consumers to make up for the related risks, this would be conducive to the development of the market. Reichheld and Schefter (2000) point out, “price does not rule the web; trust does”.
The value of TTP in e-commerce has long been investigated by researchers, who made important contributions regarding TTP’s effectiveness (X. Hu et al., 2010; Kiernan et al., 2002; Dan J. Kim et al., 2008; Özpolat et al., 2013). However, studies on TTP are often limited to security and privacy certification, but neglect the influence of third-party enterprises on consumer trust, such as logistics and distribution, insurance, recommending and payment systems (Benassi, 1999). Through literature review and analysis, we found that one of the main reasons for this problem is their narrow definitions of TTP, which result in limitations in explaining its function and mechanism. Therefore, TTP as defined by this research refers to a third party economic entity whose main goal is overcoming the credit obstacles and credit risks of the virtual market, improving the awareness of overall credit information and honesty of the market, forming a good credit culture in the virtual market, expanding online transaction volume and promoting the constant development of e-commerce. The framework of TTP is a complex composition of e-commerce trust intermediaries that provide various kinds of credit services: payment, logistics & distribution, guarantee & insurance, certification and rating & recommendation. On the other hand, in the domains of marketing and traditional commerce, researchers also point out that the logistics and distribution mechanism and the insurance mechanism have a certain degree of influence on consumers’ shopping behaviours and shopping decisions (Y. Fang et al., 2014; Mangiaracina et al., 2015). However, in the e-commerce context, there are few empirical studies on the impact of these TTP services on consumers’ trust intentions. This research aims to fill the knowledge gap here. Therefore, the objective of this research is to address the following question:

*Can different types of TTP services improve consumers’ trust intentions?*

An empirical research was conducted and 282 samples were obtained by random sampling. Then, research hypotheses were validated using PLS-SEM. The results indicate that consumers’ trust intentions were impacted by their perception of TTP services, such as payment services, logistics & distribution services, certification services and rating & recommendation services. Theoretically, this research integrates different service types
of TTPs and provides a new perspective for research on TTPs and related issues. Also, the framework of TTP proposed in this research may become the foundation for future research on the management of e-commerce trust based on TTPs. In terms of the prospects for application, this research clarifies the definitions and basic characteristics of TTP services for concerned parties and helps them have a better understanding of trust in e-commerce. Moreover, the research is helpful for e-commerce companies to better grasp the TTP service demand in the virtual market and understand the main factors and mechanisms influencing consumer trust. Finally, this research enables companies to identify key service types of TTP for trust building, so that the trust building is more purposeful and trust risk prevention is improved.

This chapter is organised as follows: The second section expatiates the problems consumers are facing in the online shopping environment, as well as the functions of TTP. Section three discusses the theoretical background of this research and develops a series of hypotheses. The fourth section expounds the research methodology and explores the data collection and analysis. Section five shows the analysis results. The main findings and their effects are put forward in section six, which also points out limitations in this study and discusses possibilities for further research. The last section provides the conclusion.

### 8.2 The Influence of TTPs on Consumers’ Online Trust

#### 8.2.1 Trust Problems

In e-commerce, consumers’ online trust is represented by the interaction between consumers’ decisions on engaging in the online transaction and the online retailers’ credibility (C. Cao & Yan, 2014). Consumers have two general types of options for the online transaction: to accept or to reject. In terms of online retailers’ credibility, there are two types: trustworthy or dishonest. Therefore, the interaction between these two parties creates four scenarios that determine the consumers’ online trust, as shown in Table 8.1. If an online retailer is trustworthy and the consumers agree or an online retailer is dishonest and the
consumers reject to make transactions with it, then consumers’ online trust can be secured. From the consumers’ perspective, however, two types of errors exist in these four scenarios, namely credit obstacles and credit risk (Fam et al., 2004; Hsu, 2008; Salam et al., 2003).

Table 8.1 Interaction between Consumers and Online Retailers

<table>
<thead>
<tr>
<th>Consumers</th>
<th>Online Retailers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accept</td>
<td>Trustworthy</td>
</tr>
<tr>
<td></td>
<td>Right Strategy Decision</td>
</tr>
<tr>
<td>Reject</td>
<td>Credit Obstacle</td>
</tr>
<tr>
<td></td>
<td>Right Strategy Decision</td>
</tr>
</tbody>
</table>

Credit Obstacle refers to the ineffective transfer of an online retailer’s credit information to the consumers because of information being blocked. Due to the presence of the credit obstacle, consumers are unable to have a necessary understanding of credibility status of the online retailer, causing them to distrust the retailer. Given that e-commerce is characterised by virtuality, the credit obstacle is more obviously reflected in e-commerce than in traditional business (C. Cao & Yan, 2014; Corbitt et al., 2003; Head & Hassanein, 2002). In the B2C e-commerce market environment, there are a large number of online retailers to choose from, the transaction process is uncontrollable, the shopping experience is highly virtual and randomised transactions are increasing greatly. These problems lead to the situation where consumers are often cautious in the process of online transactions and demonstrate a lack of trust in online retailers. Therefore, the credit obstacle results in consumers’ rejection of potential transactions even when it comes to trustworthy enterprises.

The specific manifestation of the credit obstacle in the e-commerce market is as follows: though e-commerce enterprises adopt the business strategy of honesty and trustworthiness, it is still difficult to attract potential consumers. This is because the trustworthy information relating to the enterprise can’t be passed on to consumers effectively, and consumers can’t use the reliable and efficient information to reduce their risk feelings. The credit obstacle greatly affects the consumer’s trust for the target online retailer, thus
impeding potential transactions. In order to effectively solve such a trust problem, we need TTP to put across the impression that the enterprise is trustworthy, and to promote consumers’ understanding of enterprise credit information. Only through such TTPs can we effectively encourage potential consumers to build trust relationship with enterprises, so as to effectively increasing the potential transaction volume.

**Credit Risk** refers to the risk of inflicting losses to consumers because the online retailer adopts a strategy of dishonesty. In an e-commerce environment, the credit information of online retailers in the hands of consumers is asymmetric. Consumers have limited time, money and resources to gain a comprehensive and detailed understanding of the online retailer’s credit information, so they are always at great risk during online transactions. Since there is no negative information disclosure on the market, once an untrustworthy online retailer emerges, consumers are faced with potential risk in the transaction.

The specific manifestation of credit risk in the e-commerce market is as follows: e-commerce enterprises adopt the business strategy of fraud and fail to operate in good faith. Since consumers have no the information about the enterprise failing to operate in good faith, they face the problem of trading risk. Due to the existence of credit risk, consumers not only face the risk of trading failure, but also personal financial loss. The main cause of such a problem is that consumers lack the reliable means of knowing the enterprise credit, and the root of the problem is that the credit information of the enterprise is asymmetric. To solve the trust problem, an effective TTP can make the enterprise credit information public to restrain and standardise enterprise behaviour, thus reducing the credit risk faced by consumers. Only through such TTPs can we effectively avoid the fraud faced by consumers and reduce the speculative behaviour of not operating in good faith adopted by some enterprises.

To summarise, credit obstacles and credit risks interact and constitute the main obstacle of further development of consumers’ online trust. To solve these two kinds of trust problems, the e-commerce market needs TTPs to transmit both transaction parties’ credit information, punish fraudulent behaviour and certify the subjects that are trustworthy in the
market.

8.2.2 Function of TTPs

Through the above analysis, we found that TTPs can effectively solve the two kinds of trust problems facing consumers, which are solvable by two different functions of TTPs (C. Cao & Yan, 2014). The main function of TTPs is to improve the credit of the online retailers who conduct online transactions and ensure credit transactions and reduce dis-credit transactions. The establishment mechanism of credit is realised through the following functions: the first one is the transmission function of credit information; the second one is public credit: the punishment and screening function. Based on this, the TTP plays an important role in improving the credit and confidence of the whole virtual market, as well as in establishing e-commerce credit.

8.2.2.1 Transmission of Credit Information

TTP have the information transfer function, they can promote the flow of credit information among consumers and online retailers so that consumers may have a more comprehensive understanding of the credit status of online retailers before the potential transaction (C. Cao & Yan, 2014). Consumers of online transactions can easily establish the trust relationship through the credit information transfer function of TTPs. In an e-commerce environment, the parties in the transaction have limited information on each other, so it is not easy to establish a trust relationship. Therefore, both parties of a transaction need a third party to match-make and contribute to the establishment of credit relations between them.

As shown in Figure 8.1, in case of the presence of a TTP, the credit information of online retailers of the online transaction flow through consumers and online retailers and eventually achieves the credit information transfer (C. Cao & Yan, 2014). Consumers’ trust in online retailers unfamiliar to them is built on the basis of their trust in TTPs. Thus, the chain relationship transfers the consumer trust from TTPs.
The above analysis indicates that the TTPs can overcome credit obstacles caused by relatively vague credit information, so consumers do not have to be too cautious as before and do not have to reduce the probability of being defrauded even by refusing some faithful transactions sometimes as before. It can change the current condition of low credit and confidence generally shown by the online transaction actors and increase the volume of online transactions.

8.2.2.2 Publication of Credit Information

The second function of TTP is to restrain and regulate the actions of online retailers on the Internet through information publication of enterprise credit, so as to achieve the aim of screening online retailers. With the credit publication mechanism of the TTP, the credit status of online retailers becomes public information, and is subject to social supervision (Dan J Kim et al., 2005; Özpolat et al., 2013). In fact, this exerts pressure on online retailers and increases the cost of fraud or breaches of contract; thus, online retailers cannot only give consideration to short-term actions. Because if any fraud or breach of contract is recorded and made public by the TTP, these records will become the basis on which the public evaluates the credit status of the online retailer, and the online retailer is divided into different credit ratings as well. For online retailers who engage in bad conduct, their consumers will gradually diminish until these online retailers are eliminated from the market completely. In view of this supervision mechanism, online retailers will cherish their reputation and regard it as the most valuable capital for operation, and the credit consciousness of whole virtual market will be improved correspondingly. The above analysis indicates that the TTP can overcome credit risks caused by information asymmetry.
8.3 Theoretical Background and Hypotheses

There are many complex influencing factors on consumers’ online trust behaviours and different related research topics have been explored by a large number of studies from different perspectives and using different theories (Belanger et al., 2002; Y. Fang et al., 2014; Gefen et al., 2003b; Kiernan et al., 2002; Ma & Song, 2011). In order to summarise these factors, some researchers have tried to propose an integrative trust model for online shopping (C. Cao & Yan, 2014; Gefen et al., 2003b; Dan J. Kim et al., 2008). The Three-Dimensional Integrated Trust Model proposed in Chapter 4, based on the TPB and the Institutional Theory, pointed out that consumers’ trust behaviour is influenced by a combination of trust intentions, personal attitude and reaction to TTPs. The research results showed that the trust behaviour of the majority of consumers is controlled by their own will and rational. Consumer trust intention is an important factor for determining whether or not the trust behaviour will occur, but such intention is determined jointly by consumers’ personal attitudes and online reviews. Meanwhile, Chapter 4 also indicated that in the practical environment of B2C e-commerce, consumers’ own control of their trust behaviour is often affected by many factors, such as time, information and ability. Thus, TTPs can effectively influence consumers’ trust intentions and, in some special circumstances, directly influence consumer trust behaviour.

Furthermore, through a summary and analysis of sales entities in the Australia’s e-commerce market, we constructed a multi-service TTP framework using the Signalling Theory from a previous study regarding the influence and service types of TTPs on consumers’ online trust (C. Cao et al., 2016). The previous study pointed out that an integrative TTP service framework should include the following five aspects: a payment service, a logistics & distribution service, a guarantee & insurance service, a certification service and a rating & recommendation service.

This research argues that TTP plays a vital role in the development of consumer trust because it significantly influences consumers’ trust intentions and has a direct impact on
their trust behaviours. Moreover, this research also adopts the conclusions of C. Cao et al. (2016) on TTP services and functions, who claimed that TPPs provide diversified services to solve different types of problems confronted by enterprises. Based on the research results of these studies, by controlling for other variables in the Three-Dimensional Integrated Trust Model and by means of empirical research, this research attempted to explore the influence of different types of TTP services on consumers’ trust intentions under the TTP service framework. Figure 8.2 presents the proposed framework for this research.

Figure 8.2 Research Framework of TTP Services

During transactions, consumers are often worried about the effectiveness of electronic contracts as well as security issues, such as the falsification of transaction data and credit card theft (Yang et al., 2015). Due to these uncertainties, consumers urgently need TTPs for authentication and monitoring. The payment service of various kinds provided by payment institutions is one effective way to solve such problems. Payment institutions refer to specific entities that deal with financial operations of online transaction counterparts, mainly including banks, credit card organisations, third-party payment institutions and other financial institutions. Based on the above analysis, this research proposes the following hypothesis:

**Hypothesis 1.** Consumers’ perceptions of the TTP payment service used by the enterprise has a positive influence on their trust intentions.

Logistics & distribution institutions refer to enterprises that are responsible for logistics and distribution of online transactions, mainly including postal logistics systems, third-party logistics enterprises, etc. The logistics & distribution service is in the middle of
buyers and sellers. Its credit status is part of the credibility of the entire transaction process and influences whether consumers choose to trade online (Mangiaracina et al., 2015). Thus, it is hypothesised that:

**Hypothesis 2.**  
*Consumers’ perceptions of the TTP logistics & distribution service used by the enterprise has a positive influence on their trust intentions.*

The guarantee & insurance services are derived from the financial market. A massive amount of information on the internet increases information asymmetry and hence the likelihood of fraud online. The mitigation of risk becomes a means of circumventing online fraud. Guarantee & insurance services are veterans in the traditional market and this form of risk aversion is also reflected in e-commerce. The guarantee & insurance service provided by TTPs for online shopping can effectively mitigate risks in the online shopping environment, thus increasing consumers’ trust in potential transaction behaviour (C. Cao et al., 2016; Pavlou & Gefen, 2004). Thus:

**Hypothesis 3.**  
*Consumers’ perceptions of the TTP guarantee & insurance service used by the enterprise has a positive influence on their trust intentions.*

Certification institutions refer to third parties for all kinds of quality certifications to certify enterprise security, privacy and services, mainly including various service and quality certification bodies, accreditation bodies and some law, accounting and auditing enterprises. These TTPs provide certification services to market entities, improve the transparency of credit information and serve a certain role in the avoidance of credit risk (Benassi, 1999; Ma & Song, 2011). Thus, the following research hypothesis is proposed:

**Hypothesis 4.**  
*Consumers’ perceptions of the TTP certification service used by the enterprise has a positive influence on their trust intentions.*

A large number of rating & recommendation organisations are active in the interactive process of e-commerce and offer opinions for consumers through independent operations, a neutral attitude and objective comments on sales entities and products on the e-commerce market. For instance, some industry associations rank their members every year
and publish the results to promote the healthy development of the industry. Consumers can inform themselves about trustworthiness and reputability of an enterprise from this information, thus establishing a basis for trust (S. S. Li & Karahanna, 2015). Meanwhile, there are a lot of professional TTPs which test and analyse related products and offer the corresponding recommendation service. This type of TTP service can guide consumers to an in-depth and detailed understanding of the information concerning products and enterprises (C. Cao & Yan, 2014; C. Cao et al., 2016). Because consumers have a high degree of trust in these TTPs, their rating & recommendation service is more likely to influence consumers’ trust decisions. Hence, it is hypothesised that:

**Hypothesis 5.** Consumers’ perceptions of the TTP rating & recommendation service used by the enterprise has a positive influence on their trust intentions.

**8.4 Research Methodology**

**8.4.1 Sampling and Data Collection**

This research quantitatively evaluated the influence and importance of different service types of TTP on consumer trust intention by using the cross-sectional design and conducting a questionnaire among university students only once. A randomised sampling design was adopted. In total, 327 questionnaires were collected for this research. After a careful check, invalid questionnaires were eliminated. There were mainly three rules for making judgments: first, too many questions were not answered; second, most of the answers were almost the same; third, the reverse target was contradictory to the positive target. After this process, we were left with 282 valid questionnaires, accounting for 82%. According to the collected sample information, respondents included 144 males, accounting for 51.06%, and 138 females, accounting for 48.94%. The ratio of the two different genders was approximately 1:1, so there was almost an equal proportion of men and women respondents. Most of respondents have a bachelor’s degree or a post-graduate degree, accounting for 76.95%, or more than two thirds of all respondents. The
The demographic profile of respondents is summarised in Table 8.2.

### Table 8.2 Demographic Profile of Respondents (N=282)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Category</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>144</td>
<td>51.06%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>138</td>
<td>48.94%</td>
</tr>
<tr>
<td>Age</td>
<td>Under 25</td>
<td>102</td>
<td>36.17%</td>
</tr>
<tr>
<td></td>
<td>25-34</td>
<td>153</td>
<td>54.26%</td>
</tr>
<tr>
<td></td>
<td>Over 35</td>
<td>27</td>
<td>9.57%</td>
</tr>
<tr>
<td></td>
<td>College</td>
<td>65</td>
<td>23.05%</td>
</tr>
<tr>
<td>Education</td>
<td>Bachelor’s Degree</td>
<td>127</td>
<td>45.04%</td>
</tr>
<tr>
<td></td>
<td>Post Graduate Degree</td>
<td>90</td>
<td>31.91%</td>
</tr>
<tr>
<td>Internet Experience (in years)</td>
<td>6-8</td>
<td>28</td>
<td>9.93%</td>
</tr>
<tr>
<td></td>
<td>9-10</td>
<td>51</td>
<td>18.09%</td>
</tr>
<tr>
<td></td>
<td>&gt;11</td>
<td>203</td>
<td>71.98%</td>
</tr>
<tr>
<td>Shopping Frequency (per year)</td>
<td>3-6</td>
<td>52</td>
<td>18.44%</td>
</tr>
<tr>
<td></td>
<td>7-11</td>
<td>13</td>
<td>4.61%</td>
</tr>
<tr>
<td></td>
<td>&gt;12</td>
<td>217</td>
<td>76.95%</td>
</tr>
</tbody>
</table>

#### 8.4.2 Questionnaire and Measurements

In order to enhance the reliability and validity of the questionnaire, variables related to TTP service factors were measured. Taking account previous studies and effective scales of e-commerce trust, proper adjustments have been made pursuant to the characteristics of different TTP service types (Gefen et al., 2003b; Dan J. Kim et al., 2008). The Likert 7-point scale was utilised for the questions, including “Strongly disagree”, “Disagree”, “Somewhat disagree”, “Neither agree nor disagree”, “Somewhat agree”, “Agree”, and “Strongly agree”, which were given scores ranging from 1 to 7 points.

#### 8.4.3 Data Analysis

SEM is a mainstream statistical method used in the research of e-commerce online trust and is comprised of two major approaches: CB-SEM and PLS-SEM. The differences between them lie in that PLS-SEM is more applicable to theoretical construction and exploratory research, while CB-SEM is more suitable for parameter estimation and model
validation; CB-SEM usually requires the normal distribution of sample data, but PLS-SEM is not subject to such a requirement; and a small sample size is satisfactory for PLS-SEM, while CB-SEM requires a large sample size (Chin & Newsted, 1999). Given that this is an exploratory study, the sample size is small and the research purposes are to explore the construction of the TTP service framework and validate the causal relationship between different service types of TTP and consumers’ trust intentions, we decided to test and estimate related data by using SmartPLS 3.2.7 software based on the PLS-SEM method.

8.5 Results

8.5.1 Measurement Model

Reliability refers to the extent to which a scale is reliable, stable and consistent in measuring variables. Methods to estimate reliability mainly include indicator reliability, internal consistency reliability and so on. In this study, Composite Reliability is utilised for testing the internal consistency reliability and factor loading is utilised for testing the indicator reliability. If the Composite Reliability value is greater than 0.7, this indicates a very high reliability (Henseler et al., 2009); if the factor loading is greater than 0.7, this indicates a good reliability (Fornell & Larcker, 1981). It can be seen in Table 8.3 that, for all latent variables, the Composite Reliability value is larger than 0.7, showing good internal consistency reliability. Also, all indicator loadings are above the 0.7 cut-off in Table 8.5.

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Items</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certification Service (CS)</td>
<td>5</td>
<td>0.989</td>
<td>0.948</td>
</tr>
<tr>
<td>Guarantee &amp; Insurance Service (GIS)</td>
<td>3</td>
<td>0.972</td>
<td>0.921</td>
</tr>
<tr>
<td>Logistics &amp; Distribution Service (LDS)</td>
<td>4</td>
<td>0.992</td>
<td>0.970</td>
</tr>
<tr>
<td>Payment Service (PS)</td>
<td>4</td>
<td>0.992</td>
<td>0.971</td>
</tr>
<tr>
<td>Rating &amp; Recommendation Service (RRS)</td>
<td>4</td>
<td>0.995</td>
<td>0.982</td>
</tr>
<tr>
<td>Trust Intention (TI)</td>
<td>4</td>
<td>0.979</td>
<td>0.922</td>
</tr>
</tbody>
</table>

*Note:* Composite Reliability (CR), Average Variances Extracted (AVE).
Validity is the degree to which the method measures what it is supposed to measure. There are two types: convergent validity and discriminant validity. Convergent validity refers to the degree to which the indicators of the same latent variable are associated with each other. Convergent validity is often assessed by the AVE. If the AVE value is greater than 0.5, this indicates good convergent validity (Fornell & Larcker, 1981). Discriminant validity refers to the degree to which the indicators of different latent variables are not associated. Discriminant validity is mainly used to assess the degree of variance between latent variables and requires that the square root of AVE be larger than the correlation coefficient of latent variables (Fornell & Larcker, 1981). Moreover, discriminant validity was further examined by the cross-factor loadings and requires that all indicators loaded on their construct are larger than on any other (Chin et al., 2003). In Table 8.3, the AVE values of all latent variables are greater than 0.5, indicating good convergent validity. Table 8.4 shows that the square root of AVE of each construct is larger than their correlation coefficient with other constructs. In Table 8.5, the results indicate that the loading of each measurement item on its respective construct is larger than its loading on any other construct. These indicators demonstrate that the measurement model has good convergent validity and discriminant validity.

<table>
<thead>
<tr>
<th></th>
<th>CS</th>
<th>GIS</th>
<th>LDS</th>
<th>PS</th>
<th>RRS</th>
<th>TI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>0.974</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIS</td>
<td>-0.684</td>
<td>0.959</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LDS</td>
<td>0.243</td>
<td>0.126</td>
<td>0.985</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PS</td>
<td>0.762</td>
<td>-0.448</td>
<td>0.260</td>
<td>0.985</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RRS</td>
<td>0.005</td>
<td>0.238</td>
<td>0.070</td>
<td>-0.417</td>
<td>0.991</td>
<td></td>
</tr>
<tr>
<td>TI</td>
<td>0.415</td>
<td>-0.036</td>
<td>0.401</td>
<td>0.101</td>
<td>0.661</td>
<td>0.960</td>
</tr>
</tbody>
</table>

*Note: Boldface values on the diagonal are the square root of the AVE.*
### Table 8.5 Factor Loadings and Cross-loadings

<table>
<thead>
<tr>
<th></th>
<th>CS</th>
<th>GIS</th>
<th>LDS</th>
<th>PS</th>
<th>RRS</th>
<th>TI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS.1</td>
<td>0.977</td>
<td>-0.672</td>
<td>0.249</td>
<td>0.757</td>
<td>-0.011</td>
<td>0.411</td>
</tr>
<tr>
<td>CS.2</td>
<td>0.972</td>
<td>-0.658</td>
<td>0.248</td>
<td>0.739</td>
<td>0.006</td>
<td>0.402</td>
</tr>
<tr>
<td>CS.3</td>
<td>0.969</td>
<td>-0.663</td>
<td>0.219</td>
<td>0.738</td>
<td>0.002</td>
<td>0.396</td>
</tr>
<tr>
<td>CS.4</td>
<td>0.970</td>
<td>-0.666</td>
<td>0.218</td>
<td>0.716</td>
<td>0.031</td>
<td>0.410</td>
</tr>
<tr>
<td>CS.5</td>
<td>0.980</td>
<td>-0.672</td>
<td>0.249</td>
<td>0.758</td>
<td>-0.007</td>
<td>0.398</td>
</tr>
<tr>
<td>GIS.1</td>
<td>-0.647</td>
<td>0.968</td>
<td>0.140</td>
<td>-0.404</td>
<td>0.225</td>
<td>-0.039</td>
</tr>
<tr>
<td>GIS.2</td>
<td>-0.662</td>
<td>0.959</td>
<td>0.127</td>
<td>-0.443</td>
<td>0.215</td>
<td>-0.036</td>
</tr>
<tr>
<td>GIS.3</td>
<td>-0.666</td>
<td>0.952</td>
<td>0.084</td>
<td>-0.453</td>
<td>0.254</td>
<td>-0.027</td>
</tr>
<tr>
<td>LDS.1</td>
<td>0.241</td>
<td>0.121</td>
<td>0.987</td>
<td>0.257</td>
<td>0.066</td>
<td>0.388</td>
</tr>
<tr>
<td>LDS.2</td>
<td>0.229</td>
<td>0.137</td>
<td>0.985</td>
<td>0.243</td>
<td>0.083</td>
<td>0.398</td>
</tr>
<tr>
<td>LDS.3</td>
<td>0.244</td>
<td>0.118</td>
<td>0.983</td>
<td>0.261</td>
<td>0.054</td>
<td>0.388</td>
</tr>
<tr>
<td>LDS.4</td>
<td>0.244</td>
<td>0.119</td>
<td>0.985</td>
<td>0.262</td>
<td>0.072</td>
<td>0.405</td>
</tr>
<tr>
<td>PS.1</td>
<td>0.752</td>
<td>-0.441</td>
<td>0.254</td>
<td>0.988</td>
<td>-0.408</td>
<td>0.098</td>
</tr>
<tr>
<td>PS.2</td>
<td>0.757</td>
<td>-0.449</td>
<td>0.257</td>
<td>0.983</td>
<td>-0.401</td>
<td>0.112</td>
</tr>
<tr>
<td>PS.3</td>
<td>0.751</td>
<td>-0.441</td>
<td>0.261</td>
<td>0.987</td>
<td>-0.414</td>
<td>0.102</td>
</tr>
<tr>
<td>PS.4</td>
<td>0.738</td>
<td>-0.435</td>
<td>0.252</td>
<td>0.983</td>
<td>-0.424</td>
<td>0.080</td>
</tr>
<tr>
<td>RRS.1</td>
<td>0.003</td>
<td>0.242</td>
<td>0.075</td>
<td>-0.413</td>
<td>0.992</td>
<td>0.663</td>
</tr>
<tr>
<td>RRS.2</td>
<td>0.006</td>
<td>0.232</td>
<td>0.069</td>
<td>-0.407</td>
<td>0.989</td>
<td>0.658</td>
</tr>
<tr>
<td>RRS.3</td>
<td>0.009</td>
<td>0.233</td>
<td>0.072</td>
<td>-0.407</td>
<td>0.991</td>
<td>0.654</td>
</tr>
<tr>
<td>RRS.4</td>
<td>0.000</td>
<td>0.236</td>
<td>0.061</td>
<td>-0.427</td>
<td>0.991</td>
<td>0.646</td>
</tr>
<tr>
<td>TI.1</td>
<td>0.402</td>
<td>-0.023</td>
<td>0.393</td>
<td>0.103</td>
<td>0.646</td>
<td>0.966</td>
</tr>
<tr>
<td>TI.2</td>
<td>0.413</td>
<td>-0.048</td>
<td>0.396</td>
<td>0.113</td>
<td>0.635</td>
<td>0.968</td>
</tr>
<tr>
<td>TI.3</td>
<td>0.406</td>
<td>-0.040</td>
<td>0.360</td>
<td>0.099</td>
<td>0.611</td>
<td>0.951</td>
</tr>
<tr>
<td>TI.4</td>
<td>0.372</td>
<td>-0.028</td>
<td>0.390</td>
<td>0.071</td>
<td>0.647</td>
<td>0.956</td>
</tr>
</tbody>
</table>

*Note:* Boldface values indicate item loading on the assigned constructs.

### 8.5.2 Structural Model

A significance test (*t*-test) was conducted to the path coefficient by applying bootstrapping in SmartPLS 3.2.7. The size of the original sample is 282 and the number of bootstrap subsamples is 5000. The significance test results of the path coefficient are shown in Figure 8.3. Insignificant paths or those in different direction with hypotheses do not support prior hypotheses, but significant paths showing the direction of hypotheses support prior hypotheses.

Four of five hypotheses proposed in this research have passed the significance test. The
results of the empirical research show that the payment service, logistics & distribution service, certification service, and rating & recommendation service are the main factors that influence consumers’ trust intentions. Moreover, consumers’ perceptions of rating & recommendation services and logistics & distribution services have significant impact on their trust intentions.

Figure 8.3 PLS-SEM analysis results.

In this research, the model explanatory power ($R^2$) and the model predictive power ($Q^2$) are mainly utilised for evaluating the structural model. $R^2$ reflects the degree to which the exogenous latent variable is explained by the endogenous latent variable. $R^2$ is categorised as substantial ($R^2 > 0.67$), moderate ($R^2 = 0.33$) and weak ($R^2 = 0.1$) for explaining latent variables (Chin et al., 2003). In the PLS-SEM model of this research, the $R^2$ of consumers’ trust intentions is 0.681, which reaches a high level and means that the explained variable is substantially explained by the explanatory variable. The role of the $Q^2$-test is to evaluate the predictive relevance of the model. The larger the $Q^2$, the more relevant the prediction, and $Q^2 > 0$ means the model has predictive relevance (Geisser, 1975; Stone, 1974). The blindfolding function of SmartPLS 3.2.7 is used in this research for the $Q^2$-test of the predictive relevance of the structural model. The $Q^2$ of value of constructs is 0.588 and it is greater than 0, indicating good validity of the model. The above data demonstrate that the model has good predictive power and is robust.
8.6 Discussion and Implications

8.6.1 Summary of Results

This research aims to explore the relationship between different types of TTP services and consumers’ trust intentions, and focuses on the influence of TTP service types on the trust behaviours of consumers. The research results show that TTP services perceived by consumers have a significant influence on consumers’ trust intentions. To be specific, the payment service of TTP can effectively ease consumers’ concerns about payment security, leakage of payment information and falsification of transaction information, thus strengthening their control over relevant payment information, enhancing their trust intentions and finally influence their trust behaviours. The logistics & distribution service is an intermediate link between consumers and distributors. Its quality, credit status and reputation can affect consumers’ trust intentions. The certification service provides reliable, clear and useful information regarding the consultation and identification of services for consumers in an e-commerce environment, so it can effectively improve the transparency of credit information and take a certain role in the avoidance of credit risk. Consumers can have a knowledge of products, services and enterprise through browsing related information in the TTP rating & recommendation service, thus effectively removing the credit barriers and strengthening their potential trust intentions. To summarise, consumers’ perceptions of the payment service, logistics & distribution service, certification service, and rating & recommendation service significantly affect their trust intentions. However, as revealed from the statistical results of the samples, the influence of the guarantee & insurance service perceived by consumers is not significant. This is probably due to two reasons. First, the effective sample size of this research is 282 and the respondents are mainly young people who are in undergraduate or post-graduate education. The small sample size and less representative coverage of samples led to an insignificant data analysis result. Second, this research argues that in the trust decision-making process of high-value goods, the guarantee & insurance service can effectively mitigate risks in the online
shopping environment and therefore enhance consumers’ trust in potential transactions. However, because the questionnaire does not specifically distinguish online shopping products, but asks about the general opinion of consumers on TTP services in their online shopping process, consumers possibly believe that the guarantee & insurance service has no significant influence on their trust intentions. In the future, it is necessary to separately measure the influence of the guarantee & insurance service on different categories of goods, so as to investigate whether the insurance service can effectively enhance consumers’ trust intentions in the shopping environment of high-value goods.

By comparing the influence of different TTP services on trust intentions, this study found that the rating & recommendation service has the most critical impact, followed by logistics & distribution service, certification service and payment service. These findings support our previous research on the TTP functionality and services and demonstrate to some extent that TTP service types have varying influence on consumers’ trust intentions (C. Cao et al., 2016). Finally, an empirical research was conducted to present a TTP service framework, which attempts to synthesise the influence of different types of TTP services on trust intentions. The explanatory power of the model reaches 68.1%, indicating that the framework is effective.

8.6.2 Implication for Theory

Based on the findings, we would like to share some viewpoints on theoretical development. First of all, in terms of the development of e-commerce, a large number of studies have tried to explain the significance and importance of TTP on enterprise and demonstrate that security and privacy certification have an important impact on consumer trust (X. Hu et al., 2010; Kiernan et al., 2002; Dan J. Kim et al., 2008; Özpolat et al., 2013). This research attempts to redefine the definitions and functions of TTP in previous studies and propose a TTP service framework on the basis of corresponding theories and the Three-Dimensional Integrated Trust Model (C. Cao & Yan, 2014; C. Cao et al., 2016). Meanwhile, an analysis has been made on the influence of different types of TTP services
on consumer trust by means of empirical research and the PLS-SEM approach. The results show that it is not only the certification service that can enhance the degree of consumer trust; other types of services, such as the payment service and rating & recommendation service, can have a significant impact on consumers’ trust intentions. Therefore, we hope this research can be helpful for the further development of the concept of TTP in e-commerce and provide a new perspective for further research.

Secondly, as other researchers have argued, an enterprise can enhance consumer trust by displaying their own TTP services (Y. Fang et al., 2014; Kiernan et al., 2002; Ma & Song, 2011). The research results prove again that the certification service significantly influences consumers’ trust behaviours, and also reveal that the other three types of TTP services can exert a significant impact on consumers’ trust intentions. The conclusions of this research expand findings in the TTP domain to some extent and fill the gap in the research of TTP service types and system frameworks.

Furthermore, the research results indicate that different types of TTP services have different degrees of influence on consumers’ trust intentions. This is the first step towards better understanding of the mechanism of the TTP service framework in consumers’ trust decisions. Subsequent research will continue to explore the relationship between the TTP service framework and other influencing factors of trust, as well as their corresponding regulatory roles. For example, can consumers’ propensity to trust and previous shopping experience have regulating effects on which type of TTP services the consumer uses? In the repeated purchase environment, can TTP services have an influence on consumer trust? During the first shopping instance, will TTP services perceived by consumers have a decisive impact on their trust attitude?

Finally, although consumer’s perceptions of TTP services are not the only factor that affects consumer trust, the trustworthy enterprise information promoted by TTP services appears to be a very important influencing factor for potential customers. The research results can be used as the basis for the establishment and maintenance of consumers’ initial trust to some extent and can promote the development of online trust.
8.6.3 Practical Implications

The positioning of the TTP is as an intermediary of the e-commerce market. As a special credit intermediary, its economic function is proving the credit of other e-commerce enterprise by using its own credit accumulated over a long-term business presence (Head & Hassanein, 2002; K. M. Kimery & McCord, 2002). Enterprises prove that they have good credit by displaying TTPs and using them to try to build consumer trust. Many studies have pointed out that the privacy assurance and security certification of TTPs can effectively enhance consumers’ trust level of e-commerce enterprises (X. Hu et al., 2010; Özpolat et al., 2013). This research further demonstrates that different types of TTP services can significantly influence consumers’ trust intentions. Statistical results show that in the e-commerce environment, consumers are more willing to trust enterprises that make use of TTP services. Accordingly, the research suggests that if conditions permit, enterprises should display their TTP services on their websites to improve trust intentions of potential consumers.

Enterprises adopting the TTP service framework will have the following advantages:

1. **Credit information display function.** Through display of the TTP services they use, enterprises pass the trust information on to consumers so that they can effectively understand the credit status of the enterprises.

2. **Reduction of transaction cost.** Enterprises signalling that they are trustworthy can reduce the cost for consumers of investigating the credit status of the enterprises and also effectively decrease the cost for building trust with consumers.

3. **Increase of sales on the website.** This is the most significant and important economic function of the TTP service framework, which becomes effective primarily through changing the trust and shopping intentions of consumers. Because displaying TTP services can improve the corporate credit image and enhance consumer trust of enterprise, this greatly increases the possibility of transactions and the sales volume of
the website.

Traditional TTP studies focus on privacy and security certification services, so enterprises attach great importance to these two aspects (Belanger et al., 2002; Benassi, 1999; X. Hu et al., 2010; Özpapat et al., 2013). This research proposes a comprehensive TTP framework by redefining the definitions and functions of TTP. The results of the empirical research indicate that consumers’ perceptions of the payment service, logistics & distribution service and rating & recommendation service provided by TTPs can improve their trust intentions. Furthermore, the statistical results reveal that the rating & recommendation service and the logistics & distribution service have a significant influence on consumer trust. Therefore, when selecting TTP services, enterprises should not consider only one type of TTP service, but give a comprehensive consideration based on the TTP service framework. This research suggests that enterprises, as far as resources permit, should follow the TTP service framework and use different types of services to maximise consumers’ trust intentions. If the resources are insufficient to support these different types of services, TTP services should be prioritised in the following order: rating & recommendation, logistics & distribution, certification, and payment. This is because the research results indicate that the rating & recommendation service plays a dominant role in the influence on consumer trust, and the payment service has the least influence.

8.6.4 Limitations and Future Research

Although the TTP service framework proposed in this research is underpinned by multiple theories and is developed on the basis of previous studies, this research inevitably has limitations. First, the effective sample size is 282, which meets the basic requirements of PLS statistical analysis (Chin & Newsted, 1999), but a larger sample size can more effectively validate the research hypotheses. Second, more than two thirds of respondents are in undergraduate or post-graduate education, so the samples are less representative. Consequently, the research results are subject to some limitations when explaining the influence of TTP service types on consumers’ trust intentions. Last, as the data are derived
from a single cross-sectional design, all of the statistically supported relationships, hypotheses and conclusions can only be viewed as tentative.

The empirical research is carried out to reflect the influence of different service types of TTPs in the service framework on trust intentions, but there are many other factors that can impact consumers’ trust behaviours and decisions, such as consumers’ personal attitude, online reviews, personal trust propensity and enterprise reputation. It is essential for future studies to discuss the internal relationship between TTP services and other factors, and how they jointly affect the trust intentions of consumers. By exploring these relationships, we can better understand the mechanism of TTPs and effectively build trust. Moreover, in marketing, according to consumers’ collection of commodity information and involvement in the purchase decision-making process, commodities are divided into high-involvement product and low-involvement product (Delgado-Ballester & Luis Munuera-Alemán, 2001). High-involvement product often refers to high-priced goods that are purchased by consumers for a large sum of money, such as a car, appliances and jewellery. On the contrary, ordinary consumer goods with low prices and definite efficacy and function, such as beverages and fast food, belong to the low-involvement category. Different decisions of consumers in the face of these two types of products result in different behavioural patterns (Chiou & Droge, 2006; Ilyoo B Hong, 2015). Therefore, it can be a focus for future research whether for different types of product, the TTP service framework can have different degrees of influence on consumers’ trust intentions. The research results enable sales enterprises of different products to use more effective TTP services when facing consumers.

8.7 Conclusion

Since the e-commerce environment is characterised by virtuality and anonymity, trust plays an indispensable role in how it functions. Previous studies demonstrate that TTP certification services can effectively reduce uncertainty of consumers and enhance their trust. Furthermore, with the development of e-commerce, TTPs provide not only security
and privacy certification services, but also other types of services, such as recommendation, logistics and insurance. As a result, after expanding the definition and services of TTP, this research presents a TTP framework containing different service types. The main problem solved here is to validate the influence of different types of services in the TTP service framework on the consumers’ trust intention. After random sampling, a PLS statistical analysis of 282 valid samples showed that consumers’ trust intentions are significantly influenced by the rating & recommendation service, logistics & distribution service, certification service and payment service. The results indicate that the rating & recommendation service plays a particularly dominant role in building consumer trust. Through broadening the definition of TTP, this study brings a new perspective to the research of TTP systems. The results are also significant in guiding enterprises and attempt to help them to successfully meet challenges brought on by e-commerce.
CHAPTER 9
THE TRUST TRANSFER MECHANISM
OF A TRUSTED THIRD PARTY

The previous chapter summarises the service types provided by TTPs on the B2C e-commerce market and expounds the positive influence of the TTP framework system containing different service types on consumers’ trust intentions. Although the empirical research data demonstrate the significance of TTPs for trust building, a more in-depth study will be conducted to explore the specific roles of TTPs in the process of building consumer trust. This research investigates the mechanism of TTPs in the online shopping environment and points out that they have an important function of enabling the transfer of trust during consumers’ trust formation online. Furthermore, we examine the influence and regulatory roles of different types of TTP reputations and forms of presentation on the trust transfer. A laboratory experiment is performed with $2 \times 2$ treatment groups to validate the research model and hypotheses proposed herein. The experimental data analysis with PLS-SEM and PLS-MGA shows that TTPs can influence consumers’ trust intentions and behaviours by virtue of their trust transfer function. The reputation of TTPs has a positive influence on trust transfer. In addition, we also found that detailed and specific TTP description and presentation can significantly enhance consumers’ trust expectations and reduce their risk perception. The results not only enrich relevant theories of TTPs, but also provide some reliable guidance for enterprises in using and selecting TTPs.

9.1 Introduction

E-commerce continues to maintain a high pace of development. According to National Australia Bank Limited (2018), revenue from online shopping in Australia reached 24.7 billion from 2017-2018. This is equivalent to 7.9% of spending at traditional brick and mortar retailers, as measured by the Australian Bureau of Statistics (ABS) in the same
time period (National Australia Bank Limited, 2018). However, the development of e-commerce is still confronted with some challenges. An important issue is how to build trust between the parties involved in the online transaction (Corbitt et al., 2003). In fact, whatever the stage of development e-commerce is in, building, maintaining and enhancing online trust are always issues of primary importance (Dan J. Kim et al., 2008). According to the Australian Competition and Consumer Commission (2015), the statistical results of 2015 indicate that 47% of online consumers consider lack of trust in online stores to be a major obstacle to e-commerce (Guo & Jaafar, 2011). The results of a study reported by Ma and Song (2011) indicate that trust is one of the most important factors of achieving success in e-commerce. Other problems in the early stage of development of e-commerce have been gradually addressed when related technologies advance and infrastructure is perfected, such as online payment, information security, logistics and distribution, policy and laws (Hsu, 2008). However, in order to further expand e-commerce, how to build up and maintain the level of trust between the transaction parties remains a very important issue (Cheung & Lee, 2006).

Researchers and practitioners in the field of e-commerce attempt to build and promote online trust by different means. Enhancing the trustworthiness with TTPs has become a widely adopted strategy by enterprises. Researchers have carried out in-depth studies of the influence of TTPs on consumer trust, but no consensus has been reached in regard to the influence of TTPs on trust intentions. For example, some studies argue that TTPs can significantly improve consumer trust in enterprises (Head & Hassanein, 2002; X. Hu et al., 2010; Dan J. Kim et al., 2008), but other studies point out that no significant influence can be found (McKnight et al., 2004; T. Moores, 2005; T. T. Moores & Dhillon, 2003). Therefore, in our opinion, more in-depth research must be undertaken.

Questionnaire-based empirical research was usually used in previous studies to explore the influence of TTPs on consumer behaviour (D. P. Cook & Wenhong, 2003; McKnight et al., 2004; Özpolat & Jank, 2015). But it is difficult to make accurate judgements about the causal relationship between the independent variable (TTPs) and the dependent
variable (trust intention) due to the widespread existence of extraneous variables. For these reasons, we decided to examine the influence of TTPs on consumers’ trust intentions through laboratory testing in a controlled environment.

Through experimental data analysis, we found that TTPs can effectively reduce the trust barrier between enterprises and consumers. Furthermore, we noted that TTPs have the function of trust transfer, which provides a meaningful framework for our understanding of the mechanism of TTPs. According to this research, consumers’ trust in unfamiliar enterprises is built on their trust of TTPs. This chain relationship enables the transfer of consumer trust to enterprises. Also, the reputation and presentation of TTPs can have a significant influence on the trust transfer. The results further reveal the internal mechanism of TTPs and clarify the regulatory factors that influence the trust transfer. These findings are helpful for understanding and extending relevant theories and for assisting enterprises to make decisions regarding TTPs.

The remaining sections of this chapter are organised as follows: In the second section, we conduct a literature review of online trust and TTPs. The third section gives an introduction to the theoretical basis and research hypotheses. In the fourth section, the research methodology is explained in detail. The fifth section presents the analysis results of the experimental data. In the sixth section, the research findings and significance are made clear and limitations and suggestions for further research are offered. The last section provides an overview of the major findings and arrives at conclusions.

### 9.2 Literature Review

E-commerce has attracted increasingly more attention from merchants and consumers because of the advantages of the Internet, being highly interactive and convenient (Head & Hassanein, 2002; Utz et al., 2012). Online trust plays a critical role in the online transaction environment due to the virtual nature and time-space separation (C. Cao & Yan, 2014). According to existing studies, online trust is widely accepted as one of the key factors that can influence and promote online transactions (Gefen et al., 2003b; Guan &...
Lala, 2017). Therefore, it is important to analyse the main factors for the formation of online trust and study the online trust-building mechanism during the development of e-commerce.

Scholars indicate that online trust can play a role in increasing the predictability of behavioural outcomes, decreasing transaction costs, lessening opportunistic behaviours and reducing uncertainties in partners (Fam et al., 2004; Y. Fang et al., 2014; Head & Hassanein, 2002). From these results, we can assume that if enterprises can prove to consumers that online shopping is trustworthy, this will reduce their risk perception and be helpful for the development of online transactions (Ma & Song, 2011). As pointed out by Reichheld and Schefter (2000), “price does not rule the web; trust does”.

A lot of researchers have conducted insightful studies of consumers’ initial trust-building mechanisms and the formation factors of online trust. The results of the empirical studies show that consumers’ perception of helpfulness, ease of use and security of websites are important preconditions for the formation of trust (Gefen et al., 2003b; Kiernan et al., 2002). Further studies indicate that the reputation of enterprises, and structural assurance (namely, institution-based trust) have significant influence on consumers’ trust intentions (Guo & Jaafar, 2011; Kiernan et al., 2002; Dan J. Kim et al., 2008).

In the industry, a large number of TTPs appear to solve the issue of consumer trust in online transactions. These TTPs provide support for the success of online transactions by utilising different technical means and offering intermediary services. For example, VeriSign secures consumers’ online transactions and TRUSTe provides a privacy seal to demonstrate enterprises’ compliance with their commitment to privacy protection, thus effectively easing users’ concern about their privacy.

In recent years, the research on TTPs has aroused widespread attention among researchers. Relevant research points out that the TTP, as a control mechanism for online transactions, can restrict opportunistic behaviour, effectively eliminate consumers’ distrust, increase the number of potential transactions in the future and help to build up a long-term trust
relationship between both parties (Benassi, 1999; K. M. Kimery & McCord, 2002). These articles provide valuable contributions to our understanding of the significance and functions of TTPs. However, there are also different voices. For example, based on data collected from questionnaires, some studies argue that TTPs have no significant influence on consumers’ trust intentions (D. P. Cook & Wenhong, 2003; McKnight et al., 2004; T. Moores, 2005; T. T. Moores & Dhillon, 2003).

As stated above, in our opinion, it is necessary to study the real influence of TTPs on trust intentions in laboratory experiments while controlling for exogenous variables. Moreover, the existing research often expounds the influence of TTPs on consumer behaviour, but seldom explains the mechanism and influencing factors. Therefore, we created 2 × 2 treatment groups for in-depth discussion of the functions of TTPs and the corresponding regulatory factors, so as to achieve an insightful understanding of TTPs.

9.3 Theoretical Background and Hypotheses

Due to some characteristics of online shopping, such as separation of the transaction parties in space, asynchronous payment and delivery in time, and use and disclosure of personal information (such as name, address, credit card information, etc.), online transactions face greater risks compared with traditional transactions (Head & Hassanein, 2002). On the other hand, because consumers are unlikely to have all the information about the products and enterprises, they are more likely to make wrong decisions and even abandon transactions (Ma & Song, 2011). At this point, if enterprises accurately transfer the information containing their own advantages to consumers (e.g. higher quality signage, description of more reasonable prices, easier return policy, trustworthy credentials and third-party certifications), this can lessen consumers’ cost of information collection, reduce their risk perception, promote the formation of trust and increase the quantity of finalised transactions (Y. Fang et al., 2014; Head & Hassanein, 2002).

In order to effectively solve the aforementioned problems, a lot of TTPs have emerged on the e-commerce market to act as credit intermediaries, whose economic function is to
bolster the trustworthiness of other enterprises through their own trustworthiness formed from long-term business operation. This is especially helpful for newly incorporated, unknown enterprises. This aims to reduce the asymmetry of information on the e-commerce market and reduce consumers’ transaction costs, thus promoting online sales.

Therefore, TTPs have the information transfer function that can facilitate the flow of trustworthy information among online transaction parties and enable consumers to have a more reliable understanding of the trustworthiness of enterprises before engaging in transactions. By virtue of this function of TTPs, it is easier for both parties of online transactions to establish a trust relationship.

As shown in Figure 9.1, trust information of both parties in the transaction flows between consumers and enterprises through TTPs. Consumer trust in unfamiliar enterprises is built on their trust of TTPs. Thus, due to TTPs’ certification of enterprises and consumers’ trust of TTPs, this kind of chain relationship transfers consumer trust to enterprises.

![Figure 9.1 Trust Transfer of TTP](image)

To test the trust transfer function of TTPs in a laboratory environment, we constructed a research framework based on the TPB and the Three-Dimensional Integrated Trust Model, as presented in Figure 9.2.
In our opinion, consumers’ behaviours are generally in line with the explanation of TPB; that is, the behavioural decision is controlled by their own will and rational. When they have time to think over their behaviours, the behavioural intention is the best way to examine their behaviours. To be specific, with regards to the development of trust behaviour and buying decisions in the online shopping environment, consumers are often restricted by time, money, information and personal ability, so their behavioural intentions are influenced by other factors. As further pointed out by Chapter 4’s research, consumers’ personal attitude, online reviews and TTP are three main influencing factors of behavioural intentions in the online environment. Taking online trust as an example, if consumers’ trust attitude and online reviews are more positive and TTPs provide stronger support, consumers have higher trust intentions, and vice versa (C. Cao et al., 2016).

Based on the above theories, we mainly divide the influencing factors of consumers’ trust intention into personal attitude, online reviews and TTPs. The trust intention is the dependent variable and TTP is the independent variable of this experiment. Other influencing factors of trust intention, such as online reviews and consumers’ personal attitude, are
exogenous variables that are controlled for in this laboratory experiment. By controlling for exogenous variables, their influence on the experimental results are limited and a relatively high internal validity is obtained, thus laying a solid basis for explaining the causal relationship between TTPs and trust intention.

In an e-commerce environment that suffers from a lack of trust, a reliable TTP can play an enormous role. In a virtual environment, consumers often engage in transactions with a particular enterprise for the first time, so they expect extra reliable third-party protection. According to Head and Hassanein (2002), the trust of TTPs can effectively enhance consumer trust of enterprises. Guan and Lala (2017) further point out that the TTP has the most important influence on consumer trust. K. M. Kimery and McCord (2002) research also proves that TTP has a significant influence on consumer trust. Hence, the following hypothesis is put forward:

**Hypothesis 1.** Consumer-perceived TTP has a positive influence on consumers’ trust intentions.

In order to further explore the mechanism and influencing factors of TTPs, we first examine a variety of TTPs on the market. It is found that in addition to some TTPs with a very high popularity and reputation, there are also some emerging, low-reputation TTPs. Of course, these companies often adopt different strategies in pricing and charging methods. According to the explanation of the Signalling Theory, enterprises transfer their trust signals to consumers through TTPs, thereby influencing consumers’ trust intentions. Accordingly, we believe that TTPs with higher reputations can transfer stronger signals and have a more significant influence on consumers. Therefore, we propose the following hypothesis:

**Hypothesis 2.** The reputation of a TTP has a moderating effect on the relationship between TTPs and trust intentions.

Through the exploration of the TTPs used by enterprises and their form of presentation on websites, the research of indicates that TTPs are mainly presented in two forms:
abstract logo and concrete description. For example, some enterprises display the certification logo issued by TTPs to support their eligibility. This form of presentation is mainly used to show various types of security certifications, payment certifications and privacy certifications. By displaying a TTP’s logo visibly on the website, they are able to influence consumers’ trust intentions. Another form of presentation uses concrete description to explain the corresponding certifications obtained by the enterprise. For example, a description is provided of the service type and the start and end times of the service certification. Through concrete information disclosure and service description, enterprises try to effectively reinforce the trust signals perceived by consumers, reduce the risk expectations and enhance their trust in enterprises. Therefore, this research believes that:

Hypothesis 3. The form of presentation of TTPs has a moderating effect on the relationship between TTPs and trust intentions.

9.4 Research Methodology

9.4.1 Experiment Design

In order to explore the trust transfer mechanism and influencing factors of TTPs, we created $2 \times 2$ treatment groups according to reputation (high or low) and form of presentation (abstract or concrete) to test the research hypotheses. We designed an online shopping website with a professional appearance to simulate the real online shopping environment. We have carefully chosen products to be sold on the website—primarily digital products such as smartphones, cameras and speakers. Next, the introduction, description, reviews, replacement and return policy and company profile were designed and displayed to resemble real e-commerce websites.

For the experiment, we used four versions of websites and displayed TTP services at easily viewable places. The four websites displayed the same content, except for the specific requirements of different treatment groups, that is, TTPs with different types of reputations and forms of presentation.
Prior to the experiment, we conducted a pre-test of 15 college students volunteers, so as to improve the website design and function and the content of the questionnaire.

**9.4.2 Participants**

The participants of this experiment were college students, who voluntarily participated without receiving any compensation and were randomly distributed to four different treatment groups. Table 9.1 shows the demographic characteristics. 54% of participants are male and most of them (89%) fall into the 18–35 age group. More than half of the participants have shopped online over 12 times and have a very high level of internet skills (mean = 5.84, S.D. = 1.03, on a 7-point Likert scale with 1 = lowest and 7 = highest).

<table>
<thead>
<tr>
<th>Measure</th>
<th>Category</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>54</td>
<td>54.00%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>46</td>
<td>46.00%</td>
</tr>
<tr>
<td>Age</td>
<td>18-24</td>
<td>47</td>
<td>47.00%</td>
</tr>
<tr>
<td></td>
<td>25-34</td>
<td>42</td>
<td>42.00%</td>
</tr>
<tr>
<td></td>
<td>Over 35</td>
<td>11</td>
<td>11.00%</td>
</tr>
<tr>
<td>Education</td>
<td>College</td>
<td>22</td>
<td>22.00%</td>
</tr>
<tr>
<td></td>
<td>Undergraduate</td>
<td>61</td>
<td>61.00%</td>
</tr>
<tr>
<td></td>
<td>Postgraduate</td>
<td>17</td>
<td>17.00%</td>
</tr>
<tr>
<td>Shopping Frequency (per year)</td>
<td>0-6</td>
<td>7</td>
<td>7.00%</td>
</tr>
<tr>
<td></td>
<td>7-11</td>
<td>32</td>
<td>32.00%</td>
</tr>
<tr>
<td></td>
<td>&gt;12</td>
<td>61</td>
<td>61.00%</td>
</tr>
</tbody>
</table>

**9.4.3 Procedures**

Before the experiment formally started, participants were required to enter the computer laboratory, sit down and open the description file stored on the computers. Then, participants had five minutes to read a brief description of the purpose and procedure of the experiment. Participants in different treatment groups were then instructed to open different versions of the websites and browse carefully for 15 minutes. Next, a questionnaire
was filled out by each participant in 10 minutes so as to collect their demographic characteristics and data about trust intentions and behaviours for further analysis. Finally, gratitude was expressed to all participants of this experiment.

9.4.4 Data Analysis

The experiment was performed four times, lasting between 30–35 minutes each. Each treatment group had 25 participants and a total of 100 data samples were collected. PLS-SEM has good explanatory power in the case of a small sample size but without requiring the normal distribution of data, so this approach was utilised for testing the research model and the proposed hypotheses (Chin, 1998). First of all, the measurement model was assessed to test the reliability and validity of different constructs. Then, through the assessment of the structural model, we examined the relations of different constructs and the model predictability. Finally, PLS-MGA was applied for exploring the regulatory role of other relevant factors on the trust transfer.

9.5 Results

9.5.1 Measurement Model

In this study, Composite Reliability and Cronbach’s α were used to test the internal consistency reliability, and the outer loadings were used to test the indicator reliability. Table 9.2 shows that the Composite Reliability and Cronbach’s α values of all latent variables are larger than 0.7 and the outer loadings of the constructs of all measurement indicators are larger than 0.708. All these facts indicate that the measurement model of this research has very good reliability (Chin et al., 2003).

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Items</th>
<th>CA</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust Intention (TI)</td>
<td>5</td>
<td>0.864</td>
<td>0.902</td>
<td>0.648</td>
</tr>
<tr>
<td>Online Review (OR)</td>
<td>3</td>
<td>0.910</td>
<td>0.944</td>
<td>0.848</td>
</tr>
</tbody>
</table>
The AVE is used for assessing the convergent validity of the measurement model; the Fornell-Larcker criterion and the cross-loadings are used for assessing the discriminant validity. As shown in Table 9.2, the AVE values of all constructs are larger than 0.5, indicating good convergent validity (Fornell & Larcker, 1981). The outer loadings of constructs of any indicators in Table 9.3 are larger than the cross-loadings between them and other constructs. Also, as shown in Table 9.4, the AVE of any construct in the model is larger than corresponding correlation values with other constructs. All these facts indicate that the measurement model has sufficient discriminant validity (Joe F Hair et al., 2012).

Table 9.3 The Factor Loadings and Cross-loadings

<table>
<thead>
<tr>
<th></th>
<th>TI</th>
<th>OR</th>
<th>PA</th>
<th>TTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>TI.1</td>
<td>0.805</td>
<td>-0.178</td>
<td>-0.221</td>
<td>0.139</td>
</tr>
<tr>
<td>TI.2</td>
<td>0.846</td>
<td>-0.117</td>
<td>-0.204</td>
<td>0.146</td>
</tr>
<tr>
<td>TI.3</td>
<td>0.745</td>
<td>-0.115</td>
<td>-0.096</td>
<td>0.001</td>
</tr>
<tr>
<td>TI.4</td>
<td>0.776</td>
<td>-0.157</td>
<td>-0.193</td>
<td>0.21</td>
</tr>
<tr>
<td>TI.5</td>
<td>0.847</td>
<td>-0.123</td>
<td>-0.235</td>
<td>0.16</td>
</tr>
<tr>
<td>OR.1</td>
<td>-0.179</td>
<td>0.869</td>
<td>-0.33</td>
<td>0.011</td>
</tr>
<tr>
<td>OR.2</td>
<td>-0.178</td>
<td>0.857</td>
<td>-0.236</td>
<td>-0.055</td>
</tr>
<tr>
<td>OR.3</td>
<td>-0.111</td>
<td>0.902</td>
<td>-0.321</td>
<td>-0.011</td>
</tr>
<tr>
<td>PA.1</td>
<td>-0.256</td>
<td>-0.37</td>
<td>0.919</td>
<td>-0.543</td>
</tr>
<tr>
<td>PA.2</td>
<td>-0.165</td>
<td>-0.284</td>
<td>0.874</td>
<td>-0.545</td>
</tr>
<tr>
<td>PA.3</td>
<td>-0.178</td>
<td>-0.253</td>
<td>0.860</td>
<td>-0.523</td>
</tr>
<tr>
<td>PA.4</td>
<td>-0.203</td>
<td>-0.295</td>
<td>0.861</td>
<td>-0.545</td>
</tr>
<tr>
<td>PA.5</td>
<td>-0.258</td>
<td>-0.297</td>
<td>0.904</td>
<td>-0.571</td>
</tr>
<tr>
<td>TTP.1</td>
<td>0.181</td>
<td>-0.031</td>
<td>-0.569</td>
<td>0.908</td>
</tr>
<tr>
<td>TTP.2</td>
<td>0.141</td>
<td>-0.006</td>
<td>-0.564</td>
<td>0.896</td>
</tr>
<tr>
<td>TTP.3</td>
<td>0.083</td>
<td>-0.042</td>
<td>-0.488</td>
<td>0.852</td>
</tr>
<tr>
<td>TTP.4</td>
<td>0.179</td>
<td>0.004</td>
<td>-0.568</td>
<td>0.902</td>
</tr>
</tbody>
</table>

Note: Boldface values indicate item loading on the assigned constructs.
Table 9.4 The Correlation between the Dimensions

<table>
<thead>
<tr>
<th></th>
<th>TI</th>
<th>OR</th>
<th>PA</th>
<th>TTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>TI</td>
<td>0.805</td>
<td>-0.171</td>
<td>0.876</td>
<td>0.32</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td>0.033</td>
<td>0.921</td>
<td>-0.611</td>
</tr>
<tr>
<td>PA</td>
<td>-0.207</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TTP</td>
<td>0.32</td>
<td>0.218</td>
<td></td>
<td>0.909</td>
</tr>
</tbody>
</table>

Note: Boldface values on the diagonal are the square root of the AVE.

9.5.2 Structural Model

By bootstrapping in the SmartPLS 3.2.7, the $t$-test of significance was conducted for the path coefficient. The original number of samples was 100 and the maximum number of iterations was 5000. The path coefficient and the significance test results are shown in Figure 9.3. The results of the empirical research show that consumers’ perceptions of TTP services can significantly influence their trust intentions when it comes to online shopping.

The coefficient of determination ($R^2$) reflects the degree of explanation of exogenous latent variable to endogenous latent variable. If $R^2 > 0.67$, the latent variable has strong explanatory power, $R^2 > 0.33$ denotes moderate explanatory power, and $R^2 < 0.19$ denotes weak explanatory power (Wetzels et al., 2009). The value of $R^2$ is 0.805 for consumers’ trust intentions, thus indicating that the model proposed herein has a good explanatory power.
9.5.3 Multi-group Analysis

In order to understand the influence of TTP reputation and form of presentation on the trust transfer in the online shopping environment, we used the parametric approach to PLS-MGA proposed by Sarstedt et al. (2011) for testing the existence of heterogeneity. By applying Equation 6.1 The Parametric Approach to PLS-MGA (Sarstedt et al., 2011) in Chapter 6 and the independent samples t-test, the results show that they play a regulatory role in the trust transfer. The data are presented in Table 9.5 and Table 9.6.

Table 9.5 The Parametric Significance Test – High vs. Low Reputation

<table>
<thead>
<tr>
<th>Path</th>
<th>Path Coefficients Difference</th>
<th>t-Value</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA-&gt;OR</td>
<td>0.012</td>
<td>0.054</td>
<td>0.957</td>
</tr>
<tr>
<td>PA-&gt;TTP</td>
<td>0.167</td>
<td>1.539</td>
<td>0.125</td>
</tr>
<tr>
<td>OR-&gt;TI</td>
<td>0.316</td>
<td>1.273</td>
<td>0.204</td>
</tr>
<tr>
<td>PA-&gt;TI</td>
<td>0.226</td>
<td>1.436</td>
<td>0.152</td>
</tr>
<tr>
<td>Path</td>
<td>Path Coefficients Difference</td>
<td>t-Value</td>
<td>p-Value</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------------</td>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td>PA-&gt;OR</td>
<td>0.028</td>
<td>0.128</td>
<td>0.898</td>
</tr>
<tr>
<td>PA-&gt;TTP</td>
<td>0.063</td>
<td>0.585</td>
<td>0.559</td>
</tr>
<tr>
<td>OR-&gt;TI</td>
<td>0.269</td>
<td>1.066</td>
<td>0.287</td>
</tr>
<tr>
<td>PA-&gt;TI</td>
<td>0.194</td>
<td>1.374</td>
<td>0.170</td>
</tr>
<tr>
<td>TTP-&gt;TI</td>
<td>0.414</td>
<td>1.962*</td>
<td>0.050</td>
</tr>
</tbody>
</table>

Note: * p<0.05, ** p<0.01, *** P<0.001.

### 9.6 Discussion and Implications

#### 9.6.1 Summary of Results

The enterprises’ credit information cannot be effectively transferred to consumers due to obstruction and no circulation of information in the online shopping environment, thus causing their distrust of enterprises (Dan J. Kim et al., 2008). Being unable to access this information, consumers often become very cautious in the process of online transactions and demonstrate a lack of trust in merchants. This sometimes results in their rejection of potential transactions, even in the face of trustworthy enterprises (Guo & Jaafar, 2011).

The emergence of TTPs has effectively lessened these problems, reduced the information asymmetry, decreased the cost of searching for information by consumers, facilitated the establishment of trust relationships and further promoted the development of e-commerce (Özpolat & Jank, 2015). Through the analysis of the gathered data, this research provides reliable evidence that TTPs have a significant influence on consumers’ trust intentions, thus possibly increasing potential transaction volume.

Furthermore, this research explains the trust transfer function of TTPs in the e-commerce
environment and how TTPs transfers consumers’ trust in them to target enterprises. In the process of trust transfer, the reputation and presentation of TTPs plays an important regulatory role. Specifically, the higher the reputation of TTP, the more the degree of consumer trust in enterprises will be enhanced. In addition, concrete presentation is more effective when it comes to consumers’ recognition of TTP services than abstract presentation, and thus significantly promotes trust in enterprises.

In our opinion, the influence of TTPs on consumers’ behavioural intentions is realised by means of trust transfer. Therefore, the degree of consumer trust in TTPs and the effectiveness of trust transfer can significantly influence the level of trust between consumers and enterprises.

As shown in Figure 9.4, there are primarily three parties involved in the online transaction: consumers, TTPs and enterprises. TTPs build up very good trustworthiness over their long-term operation. Enterprises transfer their trust information to consumers through TTP services in order to reduce the risks perceived by consumers and enhance their trust in the enterprises. Two key points exist in this process of trust transfer: the consumers’ trust in the TTP and the TTP’s certification of enterprises. The former determines the degree of trust transfer and the latter determines the effect of trust transfer. According to our research, consumers are more willing to accept and recognise the guarantee and certification provided by high-reputation TTPs for other enterprises. Moreover, when enterprises present the TTP guarantee and certification, a concrete and detailed description can more easily influence consumers’ trust perception. In summary, the trust transfer mechanism of a TTP is influenced by its reputation and form of presentation, both of which have a significant regulatory effect on consumers’ trust intentions.
9.6.2 Theoretical and Industrial Significance

With the prosperous development of online shopping, research interests in TTP are increasing with gradually enriched achievements. On the whole, this research also makes some contributions to this field. First of all, we elaborate on the trust transfer function of TTPs and explain how the TTP certification service transfers trust to unfamiliar online enterprises. These results have enriched related literature in the field of TTP. Secondly, we also provide an in-depth discussion of the internal mechanism of TTPs and point out that reputation and form of presentation are the two important factors that can influence and regulate the trust transfer. These results further enrich related theories and extend our understanding of TTPs. Finally, the laboratory environment constructed in this research provides a very high degree of control and thereby results in a relatively high level of internal validity. This creates a favourable condition for us to explore and investigate the influence of TTPs on consumer behaviour.

When it comes to enterprises, our research provides valuable guidance for their decisions regarding TTP use. TTPs positively influence consumers’ trust intentions, so enterprises should try their best to adopt services provided by TTPs, in order to effectively enhance
consumers’ trust levels and increase potential transaction volume.

How to choose among all kinds of TTPs on the market is a challenge for enterprises. Our research results show that TTPs with higher reputations have a more significant influence on consumers’ trust intentions. Accordingly, enterprises should cooperate with such high-reputation TTPs as TRUSTe, VeriSign and BBBOnline, because they can more effectively transfer trust to potential customers, strengthen their trust in enterprises and positively influence future transactions.

Moreover, our research provides valuable insight for TTPs and their users. Our results indicate that concrete presentation, that is, the detailed description and promotion of the service and certification provided by TTPs, can effectively enhance the degree of consumer trust in enterprises. Accordingly, enterprises should not just display simple and abstract icons when presenting TTPs; they should offer a detailed description of the services and requirements provided by the TTPs, displaying this trustworthy information to consumers so as to reduce consumer perception of risks and create a friendly online shopping environment.

9.6.3 Limitations and Future Research

Although this research has carried out a beneficial exploration of the trust transfer mechanism of TTPs in the online shopping environment, there are still limitations. First, 100 samples satisfy the requirement of the minimum sample size for PLS, but more samples can effectively improve the model predictability and accuracy (Wetzels et al., 2009). Next, the age and education of participants are confined only to college students, so the experimental results cannot be simply extended to consumers made up of different groups in the real online shopping environment. In our future research, it is necessary to more widely collect a wider sample of data of different consumer groups to more generally explain the experiment’s results. Finally, due to the characteristics of the laboratory experiment, a demand artefact may result among participants. The external validity is also lower than the field experiment. Therefore, the applicability of these experimental results
to the real world is possibly weak. In future research, a field experiment could be conducted, for example, of real buying behaviours of consumers on online shopping websites with TTPs.

9.7 Conclusion

Due to the virtual nature, anonymity and separation of time and space in the online shopping environment, online trust plays an indispensable role (Fam et al., 2004). Past empirical studies have pointed out that the various services provided by TTPs can effectively alleviate uncertainties consumers face in shopping and enhance their sense of trust, thus improving online transactions of enterprises and promoting the development of e-commerce (X. Hu et al., 2010; K. M. Kimery & McCord, 2002). Although related research reports that TTPs can significantly influence consumers’ trust intentions and decision-making, existing research is seldom carried out by means of laboratory experiments, and rarely explores the internal mechanism of TTPs. Based on experimental data, this research not only confirms the significant influence of TTPs on consumers’ behaviour, but further explains their trust transfer function in the online shopping environment. Moreover, it also reveals regulatory factors of the trust transfer, namely the reputation and form of presentation of TTPs. Our research results show that the certification service of enterprises provided by TTPs with high reputations can significantly improve the degree of consumer trust in enterprises. Furthermore, the concrete and detailed description and presentation of TTP services can effectively enhance consumers’ cognition of TTP services and therefore influence their behavioural intentions. In general, the explanation of the trust transfer function and influencing factors of TTPs in this research not only fills the gap of TTP research, but also provides useful guidance for enterprises in choosing TTP services.
CHAPTER 10
DISCUSSIONS AND CONCLUSIONS

This chapter summarises the conclusions of this research, explores their theoretical significance and provides some useful guidance for the industry. In addition, it also clarifies the limitations of the research at the present stage and discusses prospects for further study.

10.1 Summary of Results

**Conclusion One:** The level of consumer trust intentions is an important criterion for predicting consumer trust behaviour, and consumer trust intentions are jointly determined by consumer attitude, online reviews viewed by consumers and services provided by TTPs to enterprises.

Based on the TPB, this research comprehensively summarises the three influencing factors on consumer trust behaviour as mentioned above. As well as identifying and presenting relevant influencing factors, this research can also make it possible to study the interaction of different types of factors.

**Conclusion Two:** Consumer attitude towards online trust behaviour is influenced by the reliability of the current e-commerce environment, the personal propensity to trust, enterprise size, webpage design viewed by consumers while browsing online products or services as well as consumers’ own experiences with online transactions.

The consumer’s personal propensity to trust is of great significance to the process of building initial trust (G. Bansal & Gefen, 2010). The results of this research show that if the personal propensity to trust is high, the consumer is predisposed to trust an enterprise even if no reliable information is available. A consumer’s personal propensity to trust is affected by his or her growth experience, personality traits and cultural background. Due to the individual particularity, this inevitably leads to a certain degree of difference in
personal propensity to trust in the face of unfamiliar enterprises (Cheung & Lee, 2006; M. K. Lee & Turban, 2001).

Moreover, the research also points out that consumers’ previous online shopping experiences can significantly influence their trust intentions. The more positive such experiences were, the stronger the trust intentions are. In other words, if consumers have more positive views of previous transaction experiences, their trust level in enterprises will be higher (Hongyoun Hahn & Kim, 2009; Monsuwé et al., 2004). The results indicate that consumers’ previous interactions with enterprises play an important role in the process of constructing repeated trust and significantly influence their personal attitude.

**Conclusion Three:** Negative online reviews viewed by consumers have a negative influence on their trust intentions.

Negative reviews of enterprises, products or services made available to consumers can reduce their trust intentions and render future interaction and purchases with the enterprise unlikely. This is mainly because, in the eyes of consumers, online reviews are the evaluations and descriptions of previous shopping experiences by other consumers (Utz et al., 2012). Since such information is not controllable by enterprises, it is considered to be highly reliable and can objectively reflect the enterprise’s trustworthiness, thus helping potential consumers to make purchasing decisions (Kusumasondjaja et al., 2012).

**Conclusion Four:** Consumers’ perception of online reviews is influenced by channels and quality of information.

This research delved into how online reviews influence consumer trust. The results show that the degree of influence of online reviews on consumer behavioural intentions is affected by channels and quality of information.

To be specific, there are significant differences in the influence of these reviews on trust intentions depending on the channel. The results of this research indicate that consumers put more trust in reviews posted on independent third-party platforms and SNS; subsequently, these have a more significant influence on consumer behaviour. Furthermore, the
information from these two types of channels is not controllable by enterprises, so it is often more authentic, reliable and independent than review information from elsewhere. Consequently, consumers have a higher degree of trust in online reviews from such channels. Since information publishers in the SNS are more closely related to consumers (often being family members, friends, colleagues and idols), such information is also more likely to attract consumers’ attention and will be more easily accepted, thus exerting strong influence on consumer trust behaviour.

But it is not only different information channels that can regulate the influence of online reviews on consumer trust intentions: information quality also has significant regulating effects. As high-quality information has a great degree of influence on trust, this research also investigated relevant factors that affect information quality. The results of the empirical research point out that accuracy, completeness, currency, credibility and format are important factors for judging information quality.

**Conclusion Five: TTPs perceived by consumers have a positive influence on their trust intentions.**

This research indicates that TTP services employed by enterprises can effectively reduce consumer perceptions of risk and significantly increase their trust in the enterprise (X. Hu et al., 2010; Ma & Song, 2011). The more TTP resources the enterprise owns, the fewer obstacles are expected; thus, consumers’ trust in the enterprise would be stronger. This can effectively and positively influence consumers’ trust intentions.

**Conclusion Six: Different services provided by TTPs have different influence on consumer trust intentions.**

This research summarises different service functions provided by TTPs, while extend the definition and connotation of TTP to some extent. The results reveal that different types of TTP services available to consumers have significantly different influence on trust behaviour. The use of TTPs should not be limited to traditional security and privacy issues; TTPs should also be used to build a comprehensive services framework. Only in this way
can different types of TTP services be used to reduce risk in different areas and effectively increase consumers’ overall trust level.

**Conclusion Seven:** The type of presentation and reputation of TTPs can play a regulatory role in the trust transfer.

TTP has the trust transfer function that can facilitate the flow of credit information among different transaction parties and enable consumers to evaluate trustworthiness of unfamiliar enterprises before potential transactions. With the trust transfer function of TTPs, it is easier for consumers to build trust in enterprises. The research results also indicate that the trust transfer function is influenced by the reputation of the TTP itself and the way the enterprises present the TTP. Specifically, services provided by TTPs with better reputations are more accepted by consumers, and ultimately can significantly enhance the trust level of consumers in the enterprise. Furthermore, the complete, detailed and concrete description and presentation of TTP services can effectively increase consumers’ knowledge of TTP services and thus significantly improve their trust level in the enterprises in question.

### 10.2 Implications

In order to examine factors that influence consumer trust, the correlations between these factors and their internal mechanisms, this research applied a progressive research design. The entire experiment consisted of five independent empirical studies, and the results and conclusions are presented in Chapter 4 to Chapter 9.

#### 10.2.1 Implications for Theory

Generally, this research proposes the Three-Dimensional Integrated Trust Model for investigating influencing factors on consumer trust intentions. This model provides a reliable way for us to understand and analyse consumer trust, as well as the possibility for us to explore the internal mechanisms and correlations of different influencing factors. The
research results enrich relevant scholarship in the field of online trust, while also carrying out a meaningful verification of the applicability of TPB in the current B2C e-commerce environment. The results show that TPB can be used to explain the formation and decision-making of trust behaviours and intentions in the online shopping process of consumers.

In addition, this research not only explains the influence of different factors on consumer trust intentions, but also elaborates on correlations of different factors and explains their internal mechanisms and composition. This to some extent makes up for a gap in this field of study. For example, this research discusses the trust transfer function of TTPs by an experimental method and explains the source of online review information. These are new breakthroughs in the field of online trust research that provide a new perspective for related research, as well as a new way to gain insight into the consumer trust-building mechanism.

Finally, this research is not confined to a simple enumeration of influencing factors on trust behaviour, but engages in a profound discussion of the ways in which these factors influence consumer trust. Previous studies have only pointed out which factors influence trust behaviour, but ignored their internal mechanisms. However, this research not only reveals that the quality of online reviews has a significant influence on trust building, but also explains in detail the composition of information quality and expounds means and methods used by consumers for judging online reviews. This provides not only a theoretical basis for our in-depth understanding of consumers’ behavioural patterns, but also an operational framework for us to effectively predict consumer behaviour trends.

10.2.2 Innovations

This research points out the differences in online review channels and explains the regulating effects of channels on online reviews viewed by consumers.

This research presents the influencing factors of the information quality of online reviews
on consumers’ trusting intentions.

This research summarises the types of TTP services and their influence on consumer trusting behaviour.

This research explains the trust transfer function of TTPs in the formation of consumer trust.

10.2.3 Implications for Practice

In the Internet age, developing and enhancing consumer trust has become the key to increasing the volume of transactions, and it is a major issue that all enterprises engaged in online marketing should consider and resolve (Y. Kim & Peterson, 2017; Mukherjee & Nath, 2007; Y. D. Wang & Emurian, 2005). Based on the research conclusions, this section proposes the following suggestions for different stakeholders.

10.2.3.1 Suggestions for Enterprises

Enterprises should pay attention to online reviews and TTP, and the suggestions are:

1. Construction of online consumer review systems

In the minds of consumers, online reviews are comments on enterprises, products and services posted by other consumers with a prior shopping experience, and serve multiple functions, such as word of mouth and recommendation (Filieri, 2015; Filieri & McLeay, 2014; H.-W. Kim et al., 2004; Z. Zhang et al., 2010). Enterprises can use this premise to enhance the trust level of potential consumers. In practice, the following points must be highlighted by enterprises:

First, online reviews from channels beyond the control of enterprises can have a more significant influence on consumer behavioural intentions; accordingly, enterprises should use third-party platforms as much as possible to display consumer reviews. Also, enterprises should provide more positive responses to reviews on SNS. This is the only the
trust level of consumers can be effectively enhanced.

**Second**, high-quality information is important to consumers, so enterprises should measure the quality of their information pursuant to the information quality framework proposed in this research. They should display this high-quality information to consumers as much as possible, so as to improve their decision-making efficiency in the face of massive amounts of competing information.

2. **Comprehensive use of services provided by TTPs**

Enterprises should strive to demonstrate the quality of their TTP services for the purpose of relaying trustworthy information to consumers. The following points are critical in the use of TTP services:

**First**, the services provided by TTPs fall into different categories, so enterprises should select different types of services for comprehensive display. Different types of TTPs aim to address different consumer needs, and therefore there are significant differences in their influence on consumer trust. The more comprehensive the TTP service system is, the more directly it can improve consumer trust level. Therefore, when considering TTP services, enterprises should follow the TTP service framework proposed by the research to select the appropriate service types in order to purposefully reduce the risk perception of consumers and thereby enhance trust intentions.

**Second**, currently the market is full of TTPs, and enterprises should choose those with high reputations. This is because consumers trust more in highly reputable TTPs and consider such service certifications to be more valuable.

**Third**, enterprises should describe the service types, the method of provision and the validity of the certification in detail and explain their roles, significance and helpfulness for consumers. Only detailed and concrete information can enhance consumers’ recognition of TTP services, further increase their acceptance of enterprises and achieve a high trust level.
10.2.3.2 Suggestions for Industry

For the industry, high service quality and enhanced consumer trust levels can lay a solid foundation for future transactions. Consumers’ risk preferences and decisions regarding trust during online shopping are largely influenced by previous transaction experiences and the personal propensity to trust (Dan J. Kim et al., 2008; M. K. Lee & Turban, 2001; D Harrison McKnight et al., 2002). Consequently, potential transactions can be attracted and increased only in an environment with an overall improved trust level. For the e-commerce industry, promoting the formation of a good atmosphere, striving to improve the service level of enterprises, eliminating the influence of negative factors, trying to solve the problems faced by the industry and actively responding to the demands of consumers can enhance consumers’ overall trust in the online shopping environment, effectively increasing transaction volume and achieving a virtuous circle.

10.2.3.3 Suggestions for Government

For government authorities, the improvement of laws, regulations and policy support can enhance consumer trust in online shopping and thus advance the wider development and popularisation of e-commerce (Y. Fang et al., 2014; Pavlou & Gefen, 2004; J. Zhang et al., 2016). This mainly involves two facets. First, according to the characteristics of e-commerce, laws must be enacted to protect the rights and interests of consumers. Second, a feasible dispute resolution mechanism should be available for providing professional and reliable guidance for consumers.

A good online shopping atmosphere and a high level of trust intentions are the result of joint investment in multiple aspects by enterprises, industry and government. This is the only way to effectively enhance the trust intentions of consumers, further the growth of transactions and promote industry development.
10.3 Limitations

Limitations and challenges often exist in research for various reasons, and this research is no exception. Different survey methods and laboratory experiments are utilised for solving different research issues, and data analysis methods also differ according to research objectives. For specific issues and scenarios, the limitations of this research are expounded in Chapters 4 to 9. This section mainly explains some of the general limitations of this research.

Due to restrictions of time, location and funding, respondents to this research consist mainly of university students. In terms of age, they are concentrated in the 20–35 age group; regarding income, students often have minimal annual income; as for education, they are mostly achieving higher education qualifications and are adept at using the Internet. These demographic characteristics reveal that this research is limited by undiversified respondents. Although a statistical report published by the Australian Communications and Media Authority (2011) on online shopping points out that well-educated young people are the main participants of online shopping, it is undeniable that the conclusions of this research are mainly applicable to online consumers with high educational backgrounds and within the 20–35 age group, and that their applicability to other groups may be challenged. Therefore, these conclusions cannot be simply extended to all consumer groups.

The research methods adopted here are mainly divided into two types, the survey method and the laboratory experiment, which are unavoidably subject to several limitations as well.

For example, the data collected using the survey method may be affected by social desirability bias. This is in reference to the tendency of respondents to give socially desirable responses instead of selecting responses that are reflective of their true feelings (Grimm, 2010). Because this research needed to examine consumers’ individual attitude, behaviour, ability, willingness and personality, a high social desirability bias could seriously affect
its validity. We addressed this issue in several ways: by anonymising data collection, it was unnecessary for respondents to provide personal, identifying information, thereby alleviating the social desirability bias. In addition, in the process of data screening, if any respondent gave high scores to virtually all answers, the questionnaire was ruled invalid. However, despite the adoption of the above measures, the research mainly focuses on consumers’ attitudes towards different things and the analysis of their behaviours, so the conclusions are inevitably influenced by the social desirability bias (Krumpal, 2013).

The laboratory experiment is another method used in this research. Such research design may result in demand artefacts, a phenomenon in which the respondents attempt to guess the purpose of the experiment and respond accordingly (Zizzo, 2010). For example, when a privacy certification is shown on a webpage, consumers may recall online shopping privacy issues before the experiment and guess that the TTP certification service is trying to change their attitude towards this issue. Due to the existence of this phenomenon, the results of the experiment may deviate from the actual situation in the real world. Moreover, the laboratory experiment is conducted in an artificial environment; thus, its external validity is lower than that of a field experiment. Therefore, the ability to apply the experiment’s results to the real world is inevitably weakened.

Finally, the main data analysis method used in this research is PLS-SEM, which limits the results in its own way. To be specific, the question of the appropriate sample size for PLS-SEM is highly controversial among researchers (Joseph F. Hair et al., 2017). Owing to a lot of factors that can affect the sample size, some existing literature proposes different criteria for the required minimum sample size. Other researchers argue that the sample size is irrelevant to the application of PLS-SEM (Barclay, Higgins, & Thompson, 1995). Although no consensus has been achieved on minimum sample size, it is widely recognized that even with a small sample size, the statistical analysis results of PLS-SEM have no identification issues and still see high statistical significance (Chin & Newsted, 1999). However, it is undeniable that a larger sample size can increase precision and consistency of the model’s estimation.
10.4 Future Study

This research explores the influencing factors of consumer trust in the process of online shopping, analyses relations and roles of different factors and elaborates on their internal mechanisms and composition. The results make academic and industry contributions to some extent. This research will carry out further exploration in the future along with the widespread growth of e-commerce in the world and some recent developments.

First, some recent exploratory research points out that the type of product consumers purchase has significant regulating effects on their behavioural decisions (Banerjee et al., 2017; H. Hong et al., 2017). Therefore, it is necessary to examine the influence of different product types on this model. For example, researchers define two types of products, high-involvement products and low-involvement products, and further indicate that high-involvement products entail more search for product-related information on the part of the consumer (Banerjee et al., 2017; Ilyoo B Hong, 2015). Such information can provide an important basis for the consumer’s future behavioural decisions. As a result, in our future research it will be necessary to discuss product types in detail and explore their effects on the influencing factors of consumer trust. A further investigation will be conducted on the existence of significant differences in the influence of relevant factors on trusting intentions when different products are being purchased.

Second, with the vigorous popularisation and extensive development of e-commerce, consumers in different countries can purchase their favorite products and services online. However, due to differences in culture, customs, geographical location and economic development, it will be a focal point for future research whether there are significant differences in behavioural intentions of consumers in different countries and regions, especially in the process of the formation of online trust.

Last, as SNS are growing rapidly, new changes have occurred to the original online communication methods and sales models. For example, social shopping is emerging. These new situations require us not only to explore the formation mechanism of consumer trust
under the original B2C e-commerce model, but also undertake more in-depth research on the trust relationship between consumers and sellers or enterprises in the current sales model using new technologies and in new environments.
REFERENCES

Abyad, A. (2011). Consumer Trust in E-Commerce. Middle East Journal of Business, 6(3), 3-6. Retrieved from http://uow.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwY2BQME9QNLBIrTdzSjrM0SijZ2NiZNS0o0TQKkkMiUap1qAj2JADOYeZuQgxMqXmiDApuriHOHrqJObmJeRnA4C6AnLsQD7ok3gR0orkYAwwb5wKAEoIghQ


Bhattacharya, R., Devinney, T. M., & Pillutla, M. M. (1998). A Formal Model of Trust Based on Outcomes. *The Academy of Management Review, 23*(3), 459-472. Retrieved from http://uow.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwVZ0xDkIxDEMrxAmQYOYClZr9DeeEV8cAA5A0mTk_iNFYoBL-Nke7JTO7DFBvNvY3j4ohvaoLtqwRPCz6F-Z_6Pm2yHt_HVMj-16v9zy9wwgO9W0jFp0DRSjJh1uAmUTjWUdzB2rQ3Wv0ygm0Mz6ZwqvIKQBTEMGndJ-Bmp_A5f8Ji0


Childers, T. L. (1986). Assessment of the psychometric properties of an opinion leadership scale. *Journal of marketing research, 184*-188.


Das, T. K., & Teng, B.-S. (1998). Between Trust and Control: Developing Confidence in Partner Cooperation in Alliances. *The Academy of Management Review, 23*(3), 491-512. Retrieved from http://uow.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwVZ1BCkIxD5SLeAJB116g0LRp2q7FjwQAzRNsvT-xvBhV5i3szAMCFeUc1BVKq4tzw4WZFO9eRzXAm_iwzf9R8O4WDvs_htd2ft0f8ngFEhdIgSjL67CzdPm59Qm5MGnn6QzE0a3XJAvGAgYpeZmjkk2wzZEXMcI1HD1Qw6CGS1Y7


Donthu, N. (1995). Brand Equity, Brand Preference, and Purchase Intent. *Journal of Advertising, 24*(3), 25-40. Retrieved from http://uwsummon.serialsolutions.com/2.0.0/link/0/eLVHCXMsWVZ1NCsJADIWDeIKCr3AQEeSNLMWSw_QC0x-unDh_ZdmwIXeIStVcC7z3AG5KJKrDoxhNsYU5MkarSOqpio-Z_7PNl8nOMX7Avv63B9b-ZYBJcQltZVg4S9SWWti1j3VPJ-cMwmsvGPsC5XMxl8tSRW9BxGuVven85er3BOno4PYB8i4A


Hasnæe, R., & Hanan El, B. (2013). A New Trust Reputation System for E-Commerce Applications. *International Journal of Computer Science Issues (IJCSI), 10*(6), 149. Retrieved from http://uow.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwTZ1BDsIwD AQjxAsgwZkPRGrjJHXPFROP6AfOHtE_P-EhZDgeg_YnfXBG8Jt6TKzLWxZiGiCpWqrjahwZ9XDL9j_p-b71M4jeciHPv92B7xOwYQX54woboRISbFtcgJvNA0akNY4g6xpAKIFZZW l01kdncwdkRPTvWXMPZ--_R4A91-KA0


Roselius, T. (1971). Consumer Rankings of Risk Reduction Methods. *Journal of Marketing (pre-1986), 35*(1), 56. Retrieved from [http://uow.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwVZ3LDcJADEQtRAWR4EwDK232I8dnIlgC0sD6d6T_116JAzThN-ORxwCPZh4gql1ID2_vqyujVNu5U3NvI_LfM_5nmxwlXe9_gPPbz-UrfZwBjwislm1RVEbLNpxQlAKNq4Vezz3z0ClboQuWNpMjJGiPqPqI92NZBNJvUO1_DT9gFh-CW9](http://uow.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwVZ3LDcJADEQtRAWR4EwDK232I8dnIlgC0sD6d6T_116JAzThN-ORxwCPZh4gql1ID2_vqyujVNu5U3NvI_LfM_5nmxwlXe9_gPPbz-UrfZwBjwislm1RVEbLNpxQlAKNq4Vezz3z0ClboQuWNpMjJGiPqPqI92NZBNJvUO1_DT9gFh-CW9)


APPENDIX A - REQUEST LETTER FOR ONLINE SURVEY

REQUEST LETTER FOR ONLINE SURVEY

Dear Sir or Madam,

We would like to invite you to participate in a research study conducted by the School of Computing and Information Technology (SCIT) at the University of Wollongong. The research is entitled *A Trust Model for Trust Establishment and Maintenance in Business-to-Consumer E-Commerce*. We seek your approval and assistance to conduct this research. The main purpose of this research is to reveal the specific factors influencing the consumers’ online trust under the current market environment in Australia, and to give reasonable explanations for the role of each factor.

If you approve our request, then here is the link for our online survey at [http://uowcommerce.co1.qualtrics.com/SE/?SID=SV_bwsOBBrNWjLID]. The survey will take about 10-15 minutes. Please find attached to this letter the “Participant Information Sheet” for the survey participant.

The findings of this research will provide a framework for understanding the influential factors on the online trust of B2C e-commerce in Australia. If there are any ethical concerns you can contact the Ethics Officer, University of Wollongong on +61 2 4221 3386 or email rso-ethics@uow.edu.au.

Should you require any further information, please do not hesitate to contact members of the research team.

Dr. Jun Yan (Supervisor)
Faculty of Engineering and Information Sciences (EIS)
School of Computing and Information Technology (SCIT)
Tel. +61 2 4221 5411
jyan@uow.edu.au

Dr. Mengxiang Li (Co-supervisor)
Faculty of Engineering and Information Sciences (EIS)
School of Computing and Information Technology (SCIT)
Tel. +61 2 4221 4792
mli@uow.edu.au
Cong Cao (PhD Candidate)
Faculty of Engineering and Information Sciences (EIS)
School of Computing and Information Technology (SCIT)
Tel. +61 4 3132 9456
cc994@uowmail.edu.au

Yours sincerely
APPENDIX B - ONLINE SURVEY

PARTICIPANT INFORMATION SHEET

ONLINE SURVEY PARTICIPANT INFORMATION SHEET

RESEARCH TITLE

A Trust Model for Trust Establishment and Maintenance in Business-to-Consumer E-Commerce

PURPOSE OF THE RESEARCH

The main purpose of this proposed research is to reveal the specific factors influencing the consumers’ online trust under the current market environment in Australia, and to give reasonable explanations for the role of each factor. Through the exploratory research and review of literature in the related fields, this research proposes a three-dimensional trust model with the ability to provide dynamic support. The model summarizes the factors influencing the consumer trust in three aspects that are public opinion, third party and personal attitude. This research also elaborates on the specific composition of the three factors. It expounds the connotation and quality evaluation index system of public opinion; defines the structure and frame of the third party; explains the specific variables influencing the personal attitude of consumers. The model proposed by this research has good adaptability, which can provide full support to different stages of the trust relationship. Meanwhile, this research also points out that the personal attitude of consumers will plays an important role in the establishment and maintenance process of dynamic trust relationship.

INVESTIGATORS

Dr. Jun Yan (Supervisor)  
Faculty of Engineering and Information Sciences (EIS)

Dr. Mengxiang Li (Co-supervisor)  
Faculty of Engineering and Information Sciences (EIS)
METHOD AND DEMANDS ON PARTICIPANTS

If you choose to participate in this survey to share your experience and views with us, you will be asked to answer questions, which will take about 10 to 15 minutes.

We can foresee no risks for you. However, your participation is voluntary. This means that you may decide not to answer any question and you may withdraw your participation at any time up until finalization of the survey submission process. We are not collecting any information that will enable you to be identified, so if you withdraw at any time prior to the completion of the submission process, none of your data will be retained. The submission of this survey will be taken as tacit consent.

If you agree to participate in the survey, confidentiality is absolutely assured. Your personal information, such as your name and affiliation, will not be revealed in any part of my project report or in future research publications.

This study has been reviewed by the Human Research Ethics Committee, University of Wollongong. If you have any concern or complaint regarding the way this research has been conducted, you can contact the Ethics Officer, Human Research Ethics Committee, Office of Research, University of Wollongong on 4221 3386 or email rso-ethics@uow.edu.au.

Should you require any further information, please do not hesitate to contact member of the research team.

Thank you in advance for your participation in this research.

Sincerely
APPENDIX C - REQUEST LETTER FOR INTERVIEW

Dear Sir or Madam,

We would like to invite you to participate in a research study conducted by the School of Computing and Information Technology (SCIT) at the University of Wollongong. The research is entitled A Trust Model for Trust Establishment and Maintenance in Business-to-Consumer E-Commerce. We seek your approval and assistance to conduct this research. The main purpose of this research is to reveal the specific factors influencing the consumers’ online trust under the current market environment in Australia, and to give reasonable explanations for the role of each factor.

The investigator will ask some questions relevant to the above mentioned research topic and seeking to understand your views/comments/feedback of the subject from you. Please find attached to this letter the “Participant Information Sheet” for the interview participants.

The findings of this research will provide a framework for understanding the influential factors on the online trust of B2C e-commerce in Australia. If there are any ethical concerns you can contact the Ethics Officer, University of Wollongong on +61 2 4221 3386 or email rso-ethics@uow.edu.au.

Should you require any further information, please do not hesitate to contact members of the research team.

Dr. Jun Yan (Supervisor)
Faculty of Engineering and Information Sciences (EIS)
School of Computing and Information Technology (SCIT)
Tel. +61 2 4221 5411
jyan@uow.edu.au

Dr. Mengxiang Li (Co-supervisor)
Faculty of Engineering and Information Sciences (EIS)
School of Computing and Information Technology (SCIT)
Tel. +61 2 4221 4792
mli@uow.edu.au
Cong Cao (PhD Candidate)
Faculty of Engineering and Information Sciences (EIS)
School of Computing and Information Technology (SCIT)
Tel. +61 4 3132 9456
cc994@uowmail.edu.au

Yours sincerely
APPENDIX D - INTERVIEW
PARTICIPANT INFORMATION SHEET

INTERVIEW PARTICIPANT INFORMATION SHEET

RESEARCH TITLE
A Trust Model for Trust Establishment and Maintenance in Business-to-Consumer E-Commerce

PURPOSE OF THE RESEARCH
The main purpose of this proposed research is to reveal the specific factors influencing the consumers’ online trust under the current market environment in Australia, and to give reasonable explanations for the role of each factor. Through the exploratory research and review of literature in the related fields, this research proposes a three-dimensional trust model with the ability to provide dynamic support. The model summarizes the factors influencing the consumer trust in three aspects that are public opinion, third party and personal attitude. This research also elaborates on the specific composition of the three factors. It expounds the connotation and quality evaluation index system of public opinion; defines the structure and frame of the third party; explains the specific variables influencing the personal attitude of consumers. The model proposed by this research has good adaptability, which can provide full support to different stages of the trust relationship. Meanwhile, this research also points out that the personal attitude of consumers will plays an important role in the establishment and maintenance process of dynamic trust relationship.

INVESTIGATORS

Dr. Jun Yan (Supervisor)
Faculty of Engineering and Information Sciences (EIS)
School of Computing and Information Technology (SCIT)
Tel. +61 2 4221 5411
jyan@uow.edu.au

Dr. Mengxiang Li (Co-supervisor)
Faculty of Engineering and Information Sciences (EIS)
School of Computing and Information Technology (SCIT)
Tel. +61 2 4221 4792
mli@uow.edu.au
METHOD AND DEMANDS ON PARTICIPANTS
If you choose to participate in this interview to share your experience and views with us, you will be asked to answer questions, which will take about 30 to 45 minutes.

We can foresee no risks for you; however, your participation is voluntary. This means that you may decide not to answer any question and you may withdraw your participation at any time during the interview.

If you agree to participate in the interview, confidentiality is absolutely assured. Your personal information, such as your name and affiliation, will not be revealed in any part of our research report or in future research publications.

This study has been reviewed by the Human Research Ethics Committee, University of Wollongong. If you have any concern or complaint regarding the way this research has been conducted, you can contact the Ethics Officer, Human Research Ethics Committee, Office of Research, University of Wollongong on +61 2 4221 3386 or email rso-ethics@uow.edu.au.

Should you require any further information, please do not hesitate to contact member of the research team.

Thank you in advance for your participation in this research.

Sincerely
APPENDIX E - INTERVIEW CONSENT FORM FOR PARTICIPANTS

RESEARCH TITLE:
A Trust Model for Trust Establishment and Maintenance in Business-to-Consumer E-Commerce

INVESTIGATORS:
Dr. Jun Yan (Supervisor)
Faculty of Engineering and Information Sciences (EIS)
School of Computing and Information Technology (SCIT)
Tel. +61 2 4221 5411
jyan@uow.edu.au

Dr. Mengxiang Li (Co-supervisor)
Faculty of Engineering and Information Sciences (EIS)
School of Computing and Information Technology (SCIT)
Tel. +61 2 4221 4792
mli@uow.edu.au

Cong Cao (PhD Candidate)
Faculty of Engineering and Information Sciences (EIS)
School of Computing and Information Technology (SCIT)
Tel. +61 4 3132 9456
cc994@uowmail.edu.au

I have been given information about the research study, “A Trust Model for Trust Establishment and Maintenance in Business-to-Consumer E-Commerce”. The investigator, Cong Cao, is conducting this research as part of his PhD thesis. He is supervised by Jun Yan, Ph.D., in Information Technology at the School of Computing and Information Technology (SCIT) and Dr. Mengxiang Li, Ph.D. in Information Systems at the same school. The main purpose of this research is to reveal the specific factors influencing the consumers’ online trust under the current market environment in Australia, and to give reasonable explanations for the role of each factor.

I understand that I was invited to participate in this research because I am an online trust decision maker under the B2C environment of the investigated topic. However, I have the right to decline to participate in this research and my refusal will not affect anything. I understand that I can decide when the interview should be conducted according to my best interest.
I understand that my participation in this research is voluntary. I understand that I will not be paid for my participation. I am free to refuse to participate and I am free to withdraw at any time. My refusal to participate will not affect me in any way. If, however, I feel uncomfortable in any way during the interview session, I have the right to decline to answer or to end the interview.

I understand that the researcher will not identify me by name in any reports using information obtained from this interview and that my confidentiality as a participant in this study will remain secure.

I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study. Also, I have been given a copy of this consent form.

The interview will last about 30 to 45 minutes. I have the right to refuse the investigator’s request to audiotape this interview. In that case, notes will be written during the interview. My choice is to allow the investigator the right to:

- [ ] audio-tape
- [ ] take notes

If I have any enquiries about the research, I can contact Cong Cao (+61 4 3132 9456 or cc994@uowmail.edu.au), Dr. Jun Yan – Supervisor (jyan@uowmail.edu), and Dr. Mengxiang Li – Co-supervisor (mli@uow.edu.au) or if I have any concerns or complaints regarding the way the research is or has been conducted, I can contact the Ethics Officer, Human Research Ethics Committee, Office of Research, University of Wollongong on +61 2 4221 3386 or email rso-ethics@uow.edu.au.

By signing my name below, I am indicating my consent to participate in the research. I understand that the data collected from my participation will be used primarily for a PhD thesis, and may be used in summary form for research publication, and I consent for it to be used in that manner.

Signed .................................................... Date ........................................

Name (please print) ..........................................................
APPENDIX F - DISCRIMINANT VALIDITY OF CONSTRUCTS

<table>
<thead>
<tr>
<th></th>
<th>ECE</th>
<th>ES</th>
<th>PA</th>
<th>PC</th>
<th>PCI</th>
<th>OR</th>
<th>POTE</th>
<th>PP</th>
<th>PPFI</th>
<th>PPT</th>
<th>PQI</th>
<th>PTP</th>
<th>PTS</th>
<th>TB</th>
<th>TI</th>
<th>TTP</th>
<th>WD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE</td>
<td>0.927</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ES</td>
<td>-0.200</td>
<td>0.969</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA</td>
<td>-0.383</td>
<td>-0.097</td>
<td>0.913</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC</td>
<td>-0.514</td>
<td>0.482</td>
<td>0.266</td>
<td>0.969</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI</td>
<td>0.245</td>
<td>0.102</td>
<td>-0.845</td>
<td>-0.098</td>
<td>0.949</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>0.066</td>
<td>0.595</td>
<td>-0.651</td>
<td>0.291</td>
<td>0.722</td>
<td>0.872</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POTE</td>
<td>0.333</td>
<td>0.300</td>
<td>-0.212</td>
<td>-0.024</td>
<td>-0.069</td>
<td>0.100</td>
<td>0.922</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PP</td>
<td>0.312</td>
<td>0.344</td>
<td>-0.294</td>
<td>0.285</td>
<td>0.353</td>
<td>0.589</td>
<td>0.135</td>
<td>0.950</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPFI</td>
<td>-0.419</td>
<td>-0.077</td>
<td>0.657</td>
<td>0.187</td>
<td>-0.447</td>
<td>-0.326</td>
<td>-0.662</td>
<td>-0.089</td>
<td>0.927</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPT</td>
<td>-0.478</td>
<td>-0.379</td>
<td>0.787</td>
<td>0.192</td>
<td>-0.702</td>
<td>-0.720</td>
<td>-0.278</td>
<td>-0.531</td>
<td>0.534</td>
<td>0.873</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PQI</td>
<td>0.096</td>
<td>0.525</td>
<td>-0.628</td>
<td>0.425</td>
<td>0.624</td>
<td>0.796</td>
<td>0.355</td>
<td>0.522</td>
<td>-0.524</td>
<td>-0.624</td>
<td>0.879</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTP</td>
<td>-0.617</td>
<td>-0.001</td>
<td>0.197</td>
<td>0.358</td>
<td>-0.065</td>
<td>-0.113</td>
<td>-0.283</td>
<td>-0.491</td>
<td>0.257</td>
<td>0.437</td>
<td>-0.076</td>
<td>0.974</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTS</td>
<td>-0.336</td>
<td>-0.635</td>
<td>-0.075</td>
<td>-0.170</td>
<td>0.200</td>
<td>-0.211</td>
<td>-0.510</td>
<td>-0.393</td>
<td>0.144</td>
<td>0.283</td>
<td>-0.275</td>
<td>0.385</td>
<td>0.958</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

245
<table>
<thead>
<tr>
<th></th>
<th>ECE</th>
<th>ES</th>
<th>PA</th>
<th>PC</th>
<th>PCI</th>
<th>OR</th>
<th>POTE</th>
<th>PP</th>
<th>PPFI</th>
<th>PPT</th>
<th>PQI</th>
<th>PTP</th>
<th>PTS</th>
<th>TB</th>
<th>TI</th>
<th>TTP</th>
<th>WD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB</td>
<td>-0.345</td>
<td>-0.623</td>
<td>0.679</td>
<td>-0.028</td>
<td>-0.585</td>
<td>-0.766</td>
<td>-0.398</td>
<td>-0.586</td>
<td>0.498</td>
<td>0.850</td>
<td>-0.689</td>
<td>0.378</td>
<td>0.457</td>
<td><strong>0.963</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TI</td>
<td>-0.406</td>
<td>-0.558</td>
<td>0.704</td>
<td>-0.058</td>
<td>-0.615</td>
<td>-0.761</td>
<td>-0.426</td>
<td>-0.609</td>
<td>0.565</td>
<td>0.845</td>
<td>-0.742</td>
<td>0.393</td>
<td>0.453</td>
<td>0.904</td>
<td><strong>0.958</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TTP</td>
<td>-0.691</td>
<td>-0.026</td>
<td>0.018</td>
<td>0.443</td>
<td>0.185</td>
<td>0.104</td>
<td>-0.319</td>
<td>-0.356</td>
<td>0.096</td>
<td>0.316</td>
<td>0.149</td>
<td>0.702</td>
<td>0.583</td>
<td>0.292</td>
<td>0.287</td>
<td><strong>0.912</strong></td>
<td></td>
</tr>
<tr>
<td>WD</td>
<td>-0.132</td>
<td>0.108</td>
<td>0.302</td>
<td>0.261</td>
<td>-0.320</td>
<td>-0.058</td>
<td>-0.029</td>
<td>0.319</td>
<td>0.281</td>
<td>0.082</td>
<td>-0.160</td>
<td>-0.260</td>
<td>-0.040</td>
<td>-0.019</td>
<td>0.038</td>
<td>-0.183</td>
<td><strong>0.914</strong></td>
</tr>
</tbody>
</table>

Notes: Boldface values on the diagonal are the square root of the AVE.
APPENDIX G - FACTOR LOADINGS AND CROSS LOADINGS

<table>
<thead>
<tr>
<th></th>
<th>PA</th>
<th>ECE</th>
<th>ES</th>
<th>POTE</th>
<th>PP</th>
<th>PPT</th>
<th>WD</th>
<th>OR</th>
<th>PCI</th>
<th>PPFI</th>
<th>PQI</th>
<th>TB</th>
<th>TI</th>
<th>TTP</th>
<th>PC</th>
<th>PTP</th>
<th>PTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA.1</td>
<td>0.920</td>
<td>-0.338</td>
<td>-0.147</td>
<td>-0.228</td>
<td>-0.287</td>
<td>0.738</td>
<td>0.257</td>
<td>-0.639</td>
<td>-0.781</td>
<td>0.624</td>
<td>-0.602</td>
<td>0.666</td>
<td>0.674</td>
<td>0.015</td>
<td>0.226</td>
<td>0.195</td>
<td>-0.039</td>
</tr>
<tr>
<td>PA.2</td>
<td>0.906</td>
<td>-0.320</td>
<td>-0.106</td>
<td>-0.168</td>
<td>-0.254</td>
<td>0.720</td>
<td>0.254</td>
<td>-0.574</td>
<td>-0.766</td>
<td>0.595</td>
<td>-0.558</td>
<td>0.613</td>
<td>0.649</td>
<td>0.005</td>
<td>0.237</td>
<td>0.188</td>
<td>-0.078</td>
</tr>
<tr>
<td>PA.3</td>
<td>0.922</td>
<td>-0.387</td>
<td>-0.066</td>
<td>-0.227</td>
<td>-0.249</td>
<td>0.724</td>
<td>0.320</td>
<td>-0.588</td>
<td>-0.772</td>
<td>0.625</td>
<td>-0.588</td>
<td>0.618</td>
<td>0.639</td>
<td>0.016</td>
<td>0.263</td>
<td>0.157</td>
<td>-0.061</td>
</tr>
<tr>
<td>PA.4</td>
<td>0.904</td>
<td>-0.356</td>
<td>-0.032</td>
<td>-0.148</td>
<td>-0.284</td>
<td>0.691</td>
<td>0.275</td>
<td>-0.576</td>
<td>-0.767</td>
<td>0.557</td>
<td>-0.545</td>
<td>0.578</td>
<td>0.608</td>
<td>0.030</td>
<td>0.246</td>
<td>0.179</td>
<td>-0.097</td>
</tr>
<tr>
<td>ECE.1</td>
<td>-0.364</td>
<td>0.935</td>
<td>-0.187</td>
<td>0.324</td>
<td>0.281</td>
<td>-0.442</td>
<td>-0.124</td>
<td>0.053</td>
<td>0.233</td>
<td>-0.403</td>
<td>0.095</td>
<td>-0.323</td>
<td>-0.373</td>
<td>-0.638</td>
<td>-0.469</td>
<td>-0.559</td>
<td>-0.326</td>
</tr>
<tr>
<td>ECE.2</td>
<td>-0.351</td>
<td>0.941</td>
<td>-0.200</td>
<td>0.330</td>
<td>0.353</td>
<td>-0.453</td>
<td>-0.092</td>
<td>0.069</td>
<td>0.233</td>
<td>-0.410</td>
<td>0.121</td>
<td>-0.329</td>
<td>-0.405</td>
<td>-0.665</td>
<td>-0.460</td>
<td>-0.615</td>
<td>-0.325</td>
</tr>
<tr>
<td>ECE.3</td>
<td>-0.351</td>
<td>0.904</td>
<td>-0.170</td>
<td>0.271</td>
<td>0.234</td>
<td>-0.433</td>
<td>-0.150</td>
<td>0.062</td>
<td>0.215</td>
<td>-0.351</td>
<td>0.050</td>
<td>-0.306</td>
<td>-0.352</td>
<td>-0.619</td>
<td>-0.502</td>
<td>-0.542</td>
<td>-0.282</td>
</tr>
<tr>
<td>ES.1</td>
<td>-0.116</td>
<td>-0.176</td>
<td>0.979</td>
<td>0.299</td>
<td>0.393</td>
<td>-0.390</td>
<td>0.110</td>
<td>0.611</td>
<td>0.127</td>
<td>-0.075</td>
<td>0.552</td>
<td>-0.632</td>
<td>-0.570</td>
<td>-0.033</td>
<td>0.490</td>
<td>-0.013</td>
<td>-0.630</td>
</tr>
<tr>
<td>ES.2</td>
<td>-0.090</td>
<td>-0.221</td>
<td>0.975</td>
<td>0.275</td>
<td>0.300</td>
<td>-0.363</td>
<td>0.084</td>
<td>0.569</td>
<td>0.097</td>
<td>-0.080</td>
<td>0.497</td>
<td>-0.593</td>
<td>-0.534</td>
<td>-0.007</td>
<td>0.462</td>
<td>0.009</td>
<td>-0.610</td>
</tr>
<tr>
<td>ES.3</td>
<td>-0.056</td>
<td>-0.191</td>
<td>0.954</td>
<td>0.302</td>
<td>0.270</td>
<td>-0.332</td>
<td>0.129</td>
<td>0.527</td>
<td>0.047</td>
<td>-0.066</td>
<td>0.447</td>
<td>-0.572</td>
<td>-0.500</td>
<td>-0.039</td>
<td>0.437</td>
<td>0.005</td>
<td>-0.603</td>
</tr>
<tr>
<td>POTE.1</td>
<td>-0.212</td>
<td>0.322</td>
<td>0.294</td>
<td>0.937</td>
<td>0.123</td>
<td>-0.274</td>
<td>-0.047</td>
<td>0.108</td>
<td>0.052</td>
<td>-0.633</td>
<td>0.329</td>
<td>-0.394</td>
<td>-0.409</td>
<td>-0.308</td>
<td>-0.048</td>
<td>-0.271</td>
<td>-0.493</td>
</tr>
<tr>
<td>POTE.2</td>
<td>-0.194</td>
<td>0.320</td>
<td>0.287</td>
<td>0.931</td>
<td>0.138</td>
<td>-0.259</td>
<td>-0.035</td>
<td>0.098</td>
<td>0.062</td>
<td>-0.623</td>
<td>0.351</td>
<td>-0.373</td>
<td>-0.406</td>
<td>-0.305</td>
<td>-0.014</td>
<td>-0.293</td>
<td>-0.493</td>
</tr>
<tr>
<td>POTE.3</td>
<td>-0.178</td>
<td>0.275</td>
<td>0.245</td>
<td>0.897</td>
<td>0.112</td>
<td>-0.234</td>
<td>0.007</td>
<td>0.068</td>
<td>-0.080</td>
<td>-0.573</td>
<td>0.301</td>
<td>-0.330</td>
<td>-0.359</td>
<td>-0.269</td>
<td>-0.001</td>
<td>-0.213</td>
<td>-0.419</td>
</tr>
<tr>
<td></td>
<td>PA</td>
<td>ECE</td>
<td>ES</td>
<td>POTE</td>
<td>PP</td>
<td>PPT</td>
<td>WD</td>
<td>OR</td>
<td>PCI</td>
<td>PPFI</td>
<td>PQI</td>
<td>TB</td>
<td>TI</td>
<td>TTP</td>
<td>PC</td>
<td>PTP</td>
<td>PTS</td>
</tr>
<tr>
<td>-----</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>-------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>PP.1</td>
<td>-0.275</td>
<td>0.325</td>
<td>0.272</td>
<td>0.103</td>
<td><strong>0.953</strong></td>
<td>-0.489</td>
<td>0.270</td>
<td>0.546</td>
<td>0.350</td>
<td>-0.066</td>
<td>0.499</td>
<td>-0.518</td>
<td>-0.548</td>
<td>-0.324</td>
<td>0.269</td>
<td>-0.450</td>
<td>-0.353</td>
</tr>
<tr>
<td>PP.2</td>
<td>-0.296</td>
<td>0.296</td>
<td>0.349</td>
<td>0.152</td>
<td><strong>0.962</strong></td>
<td>-0.527</td>
<td>0.330</td>
<td>0.585</td>
<td>0.349</td>
<td>-0.105</td>
<td>0.518</td>
<td>-0.584</td>
<td>-0.611</td>
<td>-0.346</td>
<td>0.279</td>
<td>-0.480</td>
<td>-0.385</td>
</tr>
<tr>
<td>PP.3</td>
<td>-0.267</td>
<td>0.269</td>
<td>0.360</td>
<td>0.130</td>
<td><strong>0.936</strong></td>
<td>-0.498</td>
<td>0.308</td>
<td>0.545</td>
<td>0.304</td>
<td>-0.082</td>
<td>0.471</td>
<td>-0.567</td>
<td>-0.577</td>
<td>-0.345</td>
<td>0.264</td>
<td>-0.468</td>
<td>-0.382</td>
</tr>
<tr>
<td>PPT.1</td>
<td>0.751</td>
<td>-0.424</td>
<td>-0.365</td>
<td>-0.275</td>
<td>-0.486</td>
<td><strong>0.915</strong></td>
<td>0.042</td>
<td>-0.685</td>
<td>-0.654</td>
<td>0.518</td>
<td>-0.579</td>
<td>0.807</td>
<td>0.806</td>
<td>0.282</td>
<td>0.172</td>
<td>0.398</td>
<td>0.246</td>
</tr>
<tr>
<td>PPT.2</td>
<td>0.663</td>
<td>-0.402</td>
<td>-0.318</td>
<td>-0.263</td>
<td>-0.379</td>
<td><strong>0.854</strong></td>
<td>0.057</td>
<td>-0.571</td>
<td>-0.567</td>
<td>0.481</td>
<td>-0.499</td>
<td>0.728</td>
<td>0.719</td>
<td>0.284</td>
<td>0.219</td>
<td>0.369</td>
<td>0.231</td>
</tr>
<tr>
<td>PPT.3</td>
<td>0.683</td>
<td>-0.440</td>
<td>-0.331</td>
<td>-0.203</td>
<td>-0.514</td>
<td><strong>0.888</strong></td>
<td>0.089</td>
<td>-0.647</td>
<td>-0.636</td>
<td>0.432</td>
<td>-0.555</td>
<td>0.740</td>
<td>0.738</td>
<td>0.291</td>
<td>0.168</td>
<td>0.406</td>
<td>0.263</td>
</tr>
<tr>
<td>PPT.4</td>
<td>0.646</td>
<td>-0.405</td>
<td>-0.307</td>
<td>-0.229</td>
<td>-0.477</td>
<td><strong>0.835</strong></td>
<td>0.103</td>
<td>-0.606</td>
<td>-0.593</td>
<td>0.432</td>
<td>-0.543</td>
<td>0.689</td>
<td>0.682</td>
<td>0.247</td>
<td>0.109</td>
<td>0.350</td>
<td>0.252</td>
</tr>
<tr>
<td>WD.1</td>
<td>0.299</td>
<td>-0.156</td>
<td>0.090</td>
<td>-0.030</td>
<td>0.266</td>
<td>0.120</td>
<td><strong>0.939</strong></td>
<td>-0.077</td>
<td>-0.326</td>
<td>0.271</td>
<td>-0.179</td>
<td>0.014</td>
<td>0.070</td>
<td>-0.146</td>
<td>0.244</td>
<td>-0.230</td>
<td>-0.003</td>
</tr>
<tr>
<td>WD.2</td>
<td>0.296</td>
<td>-0.132</td>
<td>0.102</td>
<td>-0.012</td>
<td>0.256</td>
<td>0.078</td>
<td><strong>0.924</strong></td>
<td>-0.074</td>
<td>-0.320</td>
<td>0.255</td>
<td>-0.172</td>
<td>-0.018</td>
<td>0.041</td>
<td>-0.173</td>
<td>0.232</td>
<td>-0.224</td>
<td>-0.030</td>
</tr>
<tr>
<td>WD.3</td>
<td>0.276</td>
<td>-0.096</td>
<td>0.096</td>
<td>-0.040</td>
<td>0.324</td>
<td>0.072</td>
<td><strong>0.893</strong></td>
<td>-0.041</td>
<td>-0.261</td>
<td>0.261</td>
<td>-0.107</td>
<td>-0.017</td>
<td>0.030</td>
<td>-0.160</td>
<td>0.263</td>
<td>-0.239</td>
<td>-0.075</td>
</tr>
<tr>
<td>WD.4</td>
<td>0.222</td>
<td>-0.089</td>
<td>0.111</td>
<td>-0.025</td>
<td>0.334</td>
<td>0.015</td>
<td><strong>0.900</strong></td>
<td>-0.008</td>
<td>-0.253</td>
<td>0.238</td>
<td>-0.116</td>
<td>-0.061</td>
<td>-0.015</td>
<td>-0.196</td>
<td>0.212</td>
<td>-0.266</td>
<td>-0.045</td>
</tr>
<tr>
<td>OR.1</td>
<td>-0.615</td>
<td>0.066</td>
<td>0.538</td>
<td>0.087</td>
<td>0.541</td>
<td>-0.672</td>
<td>-0.039</td>
<td><strong>0.904</strong></td>
<td>0.678</td>
<td>-0.306</td>
<td>0.728</td>
<td>-0.724</td>
<td>-0.706</td>
<td>0.103</td>
<td>0.271</td>
<td>-0.110</td>
<td>-0.177</td>
</tr>
<tr>
<td>OR.2</td>
<td>-0.585</td>
<td>0.090</td>
<td>0.539</td>
<td>0.072</td>
<td>0.551</td>
<td>-0.668</td>
<td>-0.061</td>
<td><strong>0.891</strong></td>
<td>0.651</td>
<td>-0.272</td>
<td>0.718</td>
<td>-0.702</td>
<td>-0.702</td>
<td>0.058</td>
<td>0.248</td>
<td>-0.145</td>
<td>-0.220</td>
</tr>
<tr>
<td>OR.3</td>
<td>-0.530</td>
<td>0.054</td>
<td>0.529</td>
<td>0.118</td>
<td>0.507</td>
<td>-0.620</td>
<td>-0.072</td>
<td><strong>0.858</strong></td>
<td>0.589</td>
<td>-0.292</td>
<td>0.698</td>
<td>-0.639</td>
<td>-0.646</td>
<td>0.062</td>
<td>0.247</td>
<td>-0.096</td>
<td>-0.226</td>
</tr>
<tr>
<td>OR.4</td>
<td>-0.536</td>
<td>0.014</td>
<td>0.465</td>
<td>0.072</td>
<td>0.446</td>
<td>-0.541</td>
<td>-0.029</td>
<td><strong>0.832</strong></td>
<td>0.595</td>
<td>-0.266</td>
<td>0.625</td>
<td>-0.598</td>
<td>-0.591</td>
<td>0.146</td>
<td>0.248</td>
<td>-0.034</td>
<td>-0.108</td>
</tr>
<tr>
<td>PCI.1</td>
<td>-0.819</td>
<td>0.226</td>
<td>0.103</td>
<td>-0.070</td>
<td>0.316</td>
<td>-0.682</td>
<td>-0.303</td>
<td>0.690</td>
<td><strong>0.948</strong></td>
<td>-0.438</td>
<td>0.603</td>
<td>-0.571</td>
<td>-0.592</td>
<td>0.177</td>
<td>-0.095</td>
<td>-0.068</td>
<td>0.192</td>
</tr>
<tr>
<td></td>
<td>PA</td>
<td>ECE</td>
<td>ES</td>
<td>POTET</td>
<td>PP</td>
<td>PPT</td>
<td>WD</td>
<td>OR</td>
<td>PCI</td>
<td>PPFI</td>
<td>PQI</td>
<td>TB</td>
<td>TI</td>
<td>TTP</td>
<td>PC</td>
<td>PTP</td>
<td>PTS</td>
</tr>
<tr>
<td>-----</td>
<td>------</td>
<td>------</td>
<td>-------</td>
<td>-------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>PCI.2</td>
<td>-0.804</td>
<td>0.211</td>
<td>0.072</td>
<td>0.085</td>
<td>0.313</td>
<td>-0.645</td>
<td>-0.322</td>
<td>0.674</td>
<td>0.955</td>
<td>-0.416</td>
<td>0.575</td>
<td>-0.527</td>
<td>-0.565</td>
<td>0.202</td>
<td>-0.103</td>
<td>-0.036</td>
<td>0.226</td>
</tr>
<tr>
<td>PCI.3</td>
<td>-0.783</td>
<td>0.260</td>
<td>0.116</td>
<td>0.042</td>
<td>0.375</td>
<td>-0.673</td>
<td>-0.288</td>
<td>0.693</td>
<td>0.946</td>
<td>-0.417</td>
<td>0.598</td>
<td>-0.568</td>
<td>-0.595</td>
<td>0.150</td>
<td>-0.080</td>
<td>-0.080</td>
<td>0.152</td>
</tr>
<tr>
<td>PPFI.1</td>
<td>0.621</td>
<td>-0.385</td>
<td>-0.072</td>
<td>-0.636</td>
<td>0.074</td>
<td>0.501</td>
<td>0.237</td>
<td>-0.299</td>
<td>-0.400</td>
<td>0.933</td>
<td>-0.486</td>
<td>0.469</td>
<td>0.525</td>
<td>0.086</td>
<td>0.166</td>
<td>0.258</td>
<td>0.129</td>
</tr>
<tr>
<td>PPFI.2</td>
<td>0.610</td>
<td>-0.592</td>
<td>0.092</td>
<td>-0.642</td>
<td>0.106</td>
<td>0.505</td>
<td>0.253</td>
<td>-0.312</td>
<td>-0.415</td>
<td>0.936</td>
<td>-0.504</td>
<td>0.483</td>
<td>0.555</td>
<td>0.102</td>
<td>0.159</td>
<td>0.255</td>
<td>0.159</td>
</tr>
<tr>
<td>PPFI.3</td>
<td>0.598</td>
<td>-0.392</td>
<td>0.049</td>
<td>-0.563</td>
<td>0.067</td>
<td>0.480</td>
<td>0.293</td>
<td>-0.294</td>
<td>-0.428</td>
<td>0.914</td>
<td>-0.469</td>
<td>0.433</td>
<td>0.489</td>
<td>0.079</td>
<td>0.197</td>
<td>0.201</td>
<td>0.109</td>
</tr>
<tr>
<td>PQI.1</td>
<td>-0.585</td>
<td>0.091</td>
<td>0.448</td>
<td>0.311</td>
<td>0.481</td>
<td>-0.558</td>
<td>-0.159</td>
<td>0.716</td>
<td>0.583</td>
<td>-0.500</td>
<td>0.894</td>
<td>-0.617</td>
<td>-0.678</td>
<td>0.146</td>
<td>0.361</td>
<td>-0.069</td>
<td>-0.228</td>
</tr>
<tr>
<td>PQI.2</td>
<td>-0.556</td>
<td>0.100</td>
<td>0.444</td>
<td>0.319</td>
<td>0.465</td>
<td>-0.541</td>
<td>-0.147</td>
<td>0.687</td>
<td>0.548</td>
<td>-0.476</td>
<td>0.874</td>
<td>-0.605</td>
<td>-0.644</td>
<td>0.134</td>
<td>0.362</td>
<td>-0.081</td>
<td>-0.233</td>
</tr>
<tr>
<td>PQI.3</td>
<td>-0.554</td>
<td>0.079</td>
<td>0.541</td>
<td>0.359</td>
<td>0.475</td>
<td>-0.584</td>
<td>-0.117</td>
<td>0.729</td>
<td>0.544</td>
<td>-0.457</td>
<td>0.904</td>
<td>-0.667</td>
<td>-0.702</td>
<td>0.104</td>
<td>0.415</td>
<td>-0.066</td>
<td>-0.314</td>
</tr>
<tr>
<td>PQI.4</td>
<td>-0.513</td>
<td>0.065</td>
<td>0.410</td>
<td>0.257</td>
<td>0.414</td>
<td>-0.508</td>
<td>-0.140</td>
<td>0.665</td>
<td>0.519</td>
<td>-0.410</td>
<td>0.845</td>
<td>-0.528</td>
<td>-0.582</td>
<td>0.144</td>
<td>0.357</td>
<td>-0.050</td>
<td>-0.188</td>
</tr>
<tr>
<td>TB.1</td>
<td>0.663</td>
<td>-0.326</td>
<td>-0.616</td>
<td>-0.378</td>
<td>-0.562</td>
<td>0.828</td>
<td>-0.021</td>
<td>-0.755</td>
<td>-0.572</td>
<td>0.479</td>
<td>-0.665</td>
<td>0.965</td>
<td>0.886</td>
<td>0.279</td>
<td>-0.029</td>
<td>0.357</td>
<td>0.444</td>
</tr>
<tr>
<td>TB.2</td>
<td>0.644</td>
<td>-0.338</td>
<td>-0.585</td>
<td>-0.389</td>
<td>-0.567</td>
<td>0.809</td>
<td>-0.016</td>
<td>-0.721</td>
<td>-0.555</td>
<td>0.480</td>
<td>-0.662</td>
<td>0.962</td>
<td>0.856</td>
<td>0.283</td>
<td>-0.025</td>
<td>0.372</td>
<td>0.437</td>
</tr>
<tr>
<td>TL.1</td>
<td>0.683</td>
<td>-0.410</td>
<td>-0.549</td>
<td>-0.429</td>
<td>-0.559</td>
<td>0.827</td>
<td>0.028</td>
<td>-0.724</td>
<td>-0.581</td>
<td>0.565</td>
<td>-0.693</td>
<td>0.892</td>
<td>0.960</td>
<td>0.305</td>
<td>-0.019</td>
<td>0.390</td>
<td>0.455</td>
</tr>
<tr>
<td>TL.2</td>
<td>0.665</td>
<td>-0.368</td>
<td>-0.519</td>
<td>-0.385</td>
<td>-0.609</td>
<td>0.791</td>
<td>0.045</td>
<td>-0.734</td>
<td>-0.598</td>
<td>0.515</td>
<td>-0.730</td>
<td>0.839</td>
<td>0.956</td>
<td>0.244</td>
<td>-0.094</td>
<td>0.362</td>
<td>0.412</td>
</tr>
<tr>
<td>TTP.1</td>
<td>0.014</td>
<td>-0.643</td>
<td>-0.054</td>
<td>-0.286</td>
<td>-0.310</td>
<td>0.299</td>
<td>-0.189</td>
<td>0.082</td>
<td>0.169</td>
<td>0.074</td>
<td>0.151</td>
<td>0.288</td>
<td>0.279</td>
<td>0.934</td>
<td>0.422</td>
<td>0.648</td>
<td>0.556</td>
</tr>
<tr>
<td>TTP.2</td>
<td>0.071</td>
<td>-0.631</td>
<td>-0.038</td>
<td>-0.300</td>
<td>-0.294</td>
<td>0.308</td>
<td>-0.138</td>
<td>0.069</td>
<td>0.136</td>
<td>0.134</td>
<td>0.129</td>
<td>0.304</td>
<td>0.292</td>
<td>0.914</td>
<td>0.442</td>
<td>0.639</td>
<td>0.516</td>
</tr>
<tr>
<td>TTP.3</td>
<td>-0.007</td>
<td>-0.652</td>
<td>-0.036</td>
<td>-0.322</td>
<td>-0.329</td>
<td>0.295</td>
<td>-0.152</td>
<td>0.116</td>
<td>0.198</td>
<td>0.088</td>
<td>0.151</td>
<td>0.272</td>
<td>0.267</td>
<td>0.932</td>
<td>0.407</td>
<td>0.637</td>
<td>0.570</td>
</tr>
<tr>
<td></td>
<td>PA</td>
<td>ECE</td>
<td>ES</td>
<td>POTE</td>
<td>PP</td>
<td>PPT</td>
<td>WD</td>
<td>OR</td>
<td>PCI</td>
<td>PPF1</td>
<td>PQI</td>
<td>TB</td>
<td>TI</td>
<td>TTP</td>
<td>PC</td>
<td>PTP</td>
<td>PTS</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>--------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>TTP.4</td>
<td>-0.016</td>
<td>-0.594</td>
<td>0.042</td>
<td>-0.254</td>
<td>-0.373</td>
<td>0.249</td>
<td>-0.190</td>
<td>0.117</td>
<td>0.175</td>
<td>0.050</td>
<td>0.112</td>
<td>0.192</td>
<td>0.203</td>
<td>0.867</td>
<td>0.337</td>
<td>0.642</td>
<td>0.481</td>
</tr>
<tr>
<td>PC.1</td>
<td>0.255</td>
<td>-0.505</td>
<td>0.474</td>
<td>-0.013</td>
<td>0.267</td>
<td>0.193</td>
<td>0.259</td>
<td>-0.092</td>
<td>0.176</td>
<td>0.408</td>
<td>-0.036</td>
<td>-0.054</td>
<td>0.441</td>
<td>0.973</td>
<td>0.369</td>
<td>-0.159</td>
<td></td>
</tr>
<tr>
<td>PC.2</td>
<td>0.253</td>
<td>-0.492</td>
<td>0.458</td>
<td>-0.016</td>
<td>0.257</td>
<td>0.185</td>
<td>0.247</td>
<td>-0.097</td>
<td>0.166</td>
<td>0.414</td>
<td>-0.025</td>
<td>-0.047</td>
<td>0.436</td>
<td>0.967</td>
<td>0.347</td>
<td>-0.154</td>
<td></td>
</tr>
<tr>
<td>PC.3</td>
<td>0.254</td>
<td>-0.497</td>
<td>0.467</td>
<td>-0.021</td>
<td>0.300</td>
<td>0.173</td>
<td>0.265</td>
<td>-0.089</td>
<td>0.180</td>
<td>0.424</td>
<td>-0.028</td>
<td>-0.074</td>
<td>0.422</td>
<td>0.973</td>
<td>0.335</td>
<td>-0.172</td>
<td></td>
</tr>
<tr>
<td>PC.4</td>
<td>0.269</td>
<td>-0.501</td>
<td>0.472</td>
<td>-0.045</td>
<td>0.281</td>
<td>0.191</td>
<td>0.240</td>
<td>-0.100</td>
<td>0.205</td>
<td>0.404</td>
<td>-0.020</td>
<td>-0.048</td>
<td>0.417</td>
<td>0.965</td>
<td>0.336</td>
<td>-0.174</td>
<td></td>
</tr>
<tr>
<td>PTP.1</td>
<td>0.193</td>
<td>-0.608</td>
<td>0.003</td>
<td>-0.273</td>
<td>-0.466</td>
<td>0.427</td>
<td>-0.254</td>
<td>-0.098</td>
<td>-0.061</td>
<td>0.261</td>
<td>-0.062</td>
<td>0.370</td>
<td>0.386</td>
<td>0.700</td>
<td>0.367</td>
<td>0.977</td>
<td>0.374</td>
</tr>
<tr>
<td>PTP.2</td>
<td>0.220</td>
<td>-0.607</td>
<td>0.000</td>
<td>-0.282</td>
<td>-0.485</td>
<td>0.445</td>
<td>-0.258</td>
<td>-0.133</td>
<td>-0.086</td>
<td>0.260</td>
<td>-0.086</td>
<td>0.387</td>
<td>0.397</td>
<td>0.679</td>
<td>0.361</td>
<td>0.975</td>
<td>0.362</td>
</tr>
<tr>
<td>PTP.3</td>
<td>0.162</td>
<td>-0.589</td>
<td>-0.007</td>
<td>-0.271</td>
<td>-0.483</td>
<td>0.404</td>
<td>-0.248</td>
<td>-0.098</td>
<td>-0.043</td>
<td>0.229</td>
<td>-0.074</td>
<td>0.348</td>
<td>0.364</td>
<td>0.673</td>
<td>0.316</td>
<td>0.970</td>
<td>0.390</td>
</tr>
<tr>
<td>PTS.1</td>
<td>-0.086</td>
<td>-0.311</td>
<td>-0.620</td>
<td>-0.513</td>
<td>-0.362</td>
<td>0.269</td>
<td>-0.047</td>
<td>-0.195</td>
<td>0.216</td>
<td>0.148</td>
<td>-0.261</td>
<td>0.432</td>
<td>0.433</td>
<td>0.564</td>
<td>-0.170</td>
<td>0.380</td>
<td>0.961</td>
</tr>
<tr>
<td>PTS.2</td>
<td>-0.071</td>
<td>-0.314</td>
<td>-0.607</td>
<td>-0.482</td>
<td>-0.364</td>
<td>0.262</td>
<td>-0.015</td>
<td>-0.201</td>
<td>0.185</td>
<td>0.125</td>
<td>-0.251</td>
<td>0.427</td>
<td>0.423</td>
<td>0.551</td>
<td>-0.153</td>
<td>0.348</td>
<td>0.952</td>
</tr>
<tr>
<td>PTS.3</td>
<td>-0.057</td>
<td>-0.341</td>
<td>-0.598</td>
<td>-0.470</td>
<td>-0.404</td>
<td>0.283</td>
<td>-0.053</td>
<td>-0.211</td>
<td>0.173</td>
<td>0.139</td>
<td>-0.277</td>
<td>0.455</td>
<td>0.447</td>
<td>0.560</td>
<td>-0.165</td>
<td>0.379</td>
<td>0.959</td>
</tr>
</tbody>
</table>

Notes: Bold number indicate item loading on the assigned constructs.
# APPENDIX H - DESCRIPTIVE STATISTICS FOR CHAPTER SIX

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>Miss</th>
<th>Mean</th>
<th>Medi</th>
<th>Min</th>
<th>Max</th>
<th>SD</th>
<th>EK</th>
<th>Skew</th>
</tr>
</thead>
<tbody>
<tr>
<td>INT1</td>
<td>1</td>
<td>0</td>
<td>4.963</td>
<td>6.000</td>
<td>1.000</td>
<td>7.000</td>
<td>1.824</td>
<td>-1.014</td>
<td>-0.601</td>
</tr>
<tr>
<td>INT2</td>
<td>2</td>
<td>0</td>
<td>4.950</td>
<td>6.000</td>
<td>1.000</td>
<td>7.000</td>
<td>1.869</td>
<td>-1.056</td>
<td>-0.598</td>
</tr>
<tr>
<td>TRU1</td>
<td>3</td>
<td>0</td>
<td>4.817</td>
<td>6.000</td>
<td>1.000</td>
<td>7.000</td>
<td>1.723</td>
<td>-1.060</td>
<td>-0.610</td>
</tr>
<tr>
<td>TRU2</td>
<td>4</td>
<td>0</td>
<td>4.837</td>
<td>6.000</td>
<td>1.000</td>
<td>7.000</td>
<td>1.752</td>
<td>-1.065</td>
<td>-0.604</td>
</tr>
<tr>
<td>TRU3</td>
<td>5</td>
<td>0</td>
<td>4.810</td>
<td>6.000</td>
<td>1.000</td>
<td>7.000</td>
<td>1.738</td>
<td>-1.017</td>
<td>-0.609</td>
</tr>
<tr>
<td>TRU4</td>
<td>6</td>
<td>0</td>
<td>4.780</td>
<td>5.000</td>
<td>1.000</td>
<td>7.000</td>
<td>1.732</td>
<td>-1.006</td>
<td>-0.598</td>
</tr>
<tr>
<td>TRU5</td>
<td>7</td>
<td>0</td>
<td>4.783</td>
<td>5.000</td>
<td>1.000</td>
<td>7.000</td>
<td>1.717</td>
<td>-0.981</td>
<td>-0.621</td>
</tr>
<tr>
<td>COMM1</td>
<td>8</td>
<td>0</td>
<td>4.563</td>
<td>4.000</td>
<td>3.000</td>
<td>7.000</td>
<td>0.783</td>
<td>1.252</td>
<td>0.858</td>
</tr>
<tr>
<td>COMM2</td>
<td>9</td>
<td>0</td>
<td>4.527</td>
<td>4.000</td>
<td>3.000</td>
<td>7.000</td>
<td>0.785</td>
<td>1.400</td>
<td>0.847</td>
</tr>
<tr>
<td>COMM3</td>
<td>10</td>
<td>0</td>
<td>4.553</td>
<td>4.000</td>
<td>3.000</td>
<td>7.000</td>
<td>0.753</td>
<td>1.643</td>
<td>1.041</td>
</tr>
<tr>
<td>PO1</td>
<td>11</td>
<td>0</td>
<td>5.023</td>
<td>5.000</td>
<td>2.000</td>
<td>7.000</td>
<td>1.471</td>
<td>-0.361</td>
<td>-0.552</td>
</tr>
<tr>
<td>PO2</td>
<td>12</td>
<td>0</td>
<td>5.107</td>
<td>5.000</td>
<td>2.000</td>
<td>7.000</td>
<td>1.517</td>
<td>-0.439</td>
<td>-0.613</td>
</tr>
<tr>
<td>CONT1</td>
<td>13</td>
<td>0</td>
<td>4.633</td>
<td>4.000</td>
<td>3.000</td>
<td>7.000</td>
<td>0.844</td>
<td>1.062</td>
<td>1.080</td>
</tr>
<tr>
<td>CONT2</td>
<td>14</td>
<td>0</td>
<td>4.600</td>
<td>4.000</td>
<td>3.000</td>
<td>7.000</td>
<td>0.812</td>
<td>0.766</td>
<td>0.780</td>
</tr>
<tr>
<td>CONT3</td>
<td>15</td>
<td>0</td>
<td>4.617</td>
<td>4.000</td>
<td>3.000</td>
<td>7.000</td>
<td>0.830</td>
<td>0.932</td>
<td>0.923</td>
</tr>
<tr>
<td>RSK1</td>
<td>16</td>
<td>0</td>
<td>3.023</td>
<td>2.000</td>
<td>1.000</td>
<td>6.000</td>
<td>1.760</td>
<td>-1.226</td>
<td>0.473</td>
</tr>
<tr>
<td>RSK2</td>
<td>17</td>
<td>0</td>
<td>3.063</td>
<td>2.000</td>
<td>1.000</td>
<td>6.000</td>
<td>1.740</td>
<td>-1.185</td>
<td>0.498</td>
</tr>
<tr>
<td>RSK3</td>
<td>18</td>
<td>0</td>
<td>3.057</td>
<td>2.000</td>
<td>1.000</td>
<td>6.000</td>
<td>1.738</td>
<td>-1.185</td>
<td>0.487</td>
</tr>
<tr>
<td>RSK4</td>
<td>19</td>
<td>0</td>
<td>3.020</td>
<td>2.000</td>
<td>1.000</td>
<td>6.000</td>
<td>1.766</td>
<td>-1.214</td>
<td>0.488</td>
</tr>
<tr>
<td>RSK5</td>
<td>20</td>
<td>0</td>
<td>3.033</td>
<td>2.000</td>
<td>1.000</td>
<td>6.000</td>
<td>1.755</td>
<td>-1.170</td>
<td>0.500</td>
</tr>
<tr>
<td>ATT1</td>
<td>21</td>
<td>0</td>
<td>5.030</td>
<td>6.000</td>
<td>2.000</td>
<td>7.000</td>
<td>1.808</td>
<td>-1.285</td>
<td>-0.463</td>
</tr>
<tr>
<td>ATT2</td>
<td>22</td>
<td>0</td>
<td>5.040</td>
<td>6.000</td>
<td>2.000</td>
<td>7.000</td>
<td>1.812</td>
<td>-1.232</td>
<td>-0.492</td>
</tr>
<tr>
<td>ATT3</td>
<td>23</td>
<td>0</td>
<td>5.027</td>
<td>6.000</td>
<td>2.000</td>
<td>7.000</td>
<td>1.815</td>
<td>-1.256</td>
<td>-0.501</td>
</tr>
<tr>
<td>ATT4</td>
<td>24</td>
<td>0</td>
<td>5.040</td>
<td>6.000</td>
<td>2.000</td>
<td>7.000</td>
<td>1.801</td>
<td>-1.267</td>
<td>-0.476</td>
</tr>
</tbody>
</table>

Notes: Missing (Miss), Median (Medi), Standard Deviation (SD), Excess Kurtosis (EK), Skewness (Skew).
# APPENDIX I - DESCRIPTIVE STATISTICS FOR CHAPTER NINE

<table>
<thead>
<tr>
<th>No.</th>
<th>Miss</th>
<th>Mean</th>
<th>Medi</th>
<th>Min</th>
<th>Max</th>
<th>SD</th>
<th>EK</th>
<th>Skew</th>
</tr>
</thead>
<tbody>
<tr>
<td>TI.1</td>
<td>4</td>
<td>2.640</td>
<td>3.000</td>
<td>1.000</td>
<td>7.000</td>
<td>0.922</td>
<td>7.005</td>
<td>1.871</td>
</tr>
<tr>
<td>TI.2</td>
<td>5</td>
<td>2.640</td>
<td>3.000</td>
<td>1.000</td>
<td>7.000</td>
<td>0.985</td>
<td>7.356</td>
<td>2.055</td>
</tr>
<tr>
<td>TI.3</td>
<td>6</td>
<td>2.660</td>
<td>3.000</td>
<td>1.000</td>
<td>7.000</td>
<td>1.032</td>
<td>6.460</td>
<td>1.891</td>
</tr>
<tr>
<td>TI.4</td>
<td>7</td>
<td>2.610</td>
<td>3.000</td>
<td>1.000</td>
<td>7.000</td>
<td>0.937</td>
<td>5.552</td>
<td>1.526</td>
</tr>
<tr>
<td>TI.5</td>
<td>8</td>
<td>2.610</td>
<td>3.000</td>
<td>1.000</td>
<td>7.000</td>
<td>0.937</td>
<td>5.552</td>
<td>1.526</td>
</tr>
<tr>
<td>OR1</td>
<td>9</td>
<td>4.550</td>
<td>4.000</td>
<td>3.000</td>
<td>7.000</td>
<td>0.817</td>
<td>1.010</td>
<td>0.786</td>
</tr>
<tr>
<td>OR2</td>
<td>10</td>
<td>4.510</td>
<td>4.000</td>
<td>3.000</td>
<td>7.000</td>
<td>0.831</td>
<td>1.031</td>
<td>0.712</td>
</tr>
<tr>
<td>OR3</td>
<td>11</td>
<td>4.540</td>
<td>4.000</td>
<td>3.000</td>
<td>7.000</td>
<td>0.780</td>
<td>1.455</td>
<td>1.020</td>
</tr>
<tr>
<td>CONT1</td>
<td>14</td>
<td>4.580</td>
<td>4.000</td>
<td>3.000</td>
<td>7.000</td>
<td>0.862</td>
<td>1.236</td>
<td>1.031</td>
</tr>
<tr>
<td>CONT2</td>
<td>15</td>
<td>4.540</td>
<td>4.000</td>
<td>3.000</td>
<td>7.000</td>
<td>0.842</td>
<td>0.818</td>
<td>0.638</td>
</tr>
<tr>
<td>CONT3</td>
<td>16</td>
<td>4.550</td>
<td>4.000</td>
<td>3.000</td>
<td>7.000</td>
<td>0.876</td>
<td>0.856</td>
<td>0.751</td>
</tr>
<tr>
<td>PA.1</td>
<td>17</td>
<td>5.210</td>
<td>5.000</td>
<td>2.000</td>
<td>6.000</td>
<td>0.816</td>
<td>3.381</td>
<td>-1.418</td>
</tr>
<tr>
<td>PA.2</td>
<td>18</td>
<td>5.220</td>
<td>5.000</td>
<td>2.000</td>
<td>6.000</td>
<td>0.832</td>
<td>3.041</td>
<td>-1.389</td>
</tr>
<tr>
<td>PA.3</td>
<td>19</td>
<td>5.210</td>
<td>5.000</td>
<td>2.000</td>
<td>6.000</td>
<td>0.840</td>
<td>2.775</td>
<td>-1.342</td>
</tr>
<tr>
<td>PA.4</td>
<td>20</td>
<td>5.210</td>
<td>5.000</td>
<td>2.000</td>
<td>6.000</td>
<td>0.840</td>
<td>2.775</td>
<td>-1.342</td>
</tr>
<tr>
<td>PA.5</td>
<td>21</td>
<td>5.200</td>
<td>5.000</td>
<td>2.000</td>
<td>6.000</td>
<td>0.860</td>
<td>2.275</td>
<td>-1.263</td>
</tr>
<tr>
<td>TTP.1</td>
<td>22</td>
<td>2.770</td>
<td>3.000</td>
<td>2.000</td>
<td>7.000</td>
<td>0.859</td>
<td>8.193</td>
<td>2.295</td>
</tr>
<tr>
<td>TTP.2</td>
<td>23</td>
<td>2.790</td>
<td>3.000</td>
<td>2.000</td>
<td>7.000</td>
<td>0.920</td>
<td>5.522</td>
<td>1.921</td>
</tr>
<tr>
<td>TTP.3</td>
<td>24</td>
<td>2.740</td>
<td>3.000</td>
<td>2.000</td>
<td>7.000</td>
<td>0.856</td>
<td>7.101</td>
<td>2.088</td>
</tr>
<tr>
<td>TTP.4</td>
<td>25</td>
<td>2.790</td>
<td>3.000</td>
<td>2.000</td>
<td>7.000</td>
<td>0.864</td>
<td>7.426</td>
<td>2.126</td>
</tr>
</tbody>
</table>

*Notes: Missing (Miss), Median (Medi), Standard Deviation (SD), Excess Kurtosis (EK), Skewness (Skew)*
APPENDIX J - ONLINE QUALTRICS SURVEY SOFTWARE QUESTIONNAIRE SAMPLE

Trust Establishment and Maintenance in B2C E-Commerce

F1. In the past year, did you surf the Internet for some purposes (such as online news, live chat, blog, online shopping, online video and audio, etc.)?
○ Yes, I did.
○ No, I didn’t.

If No, I didn’t. Is Selected, Then Skip To End of Survey

B1. Approximately how many total hours per week do you spend online? This would be the total from all the locations you might use.
○ Less than 1 hour
○ 1 to 5 hours
○ 6 to 10 hours
○ 11 to 20 hours
○ 21 to 40 hours
○ 41 hours and more

B2. What did you surf the Internet for? (please list the purposes according to their priority)

_____ Browse the network information (such as news and blogs)
_____ Appreciate the multi-media information (such as movies and songs)
_____ Online chat
_____ Online entertainment (such as online games)
_____ Online shopping

B3. How would you rate your competency in using computer technology?

<table>
<thead>
<tr>
<th>Novice: Expert</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novice: Expert</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
B4. Did you support the online shopping?

- Very Strongly Avoid
- Strongly Avoid
- Avoid
- Indifferent
- Prefer
- Strongly Prefer
- Very Strongly Prefer

B5. Did you think the online shopping would become an indispensable way of consumption in the future?

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

P1. Above all, what was your attitude towards the online shopping?

- Very Strongly Avoid
- Strongly Avoid
- Avoid
- Indifferent
- Prefer
- Strongly Prefer
- Very Strongly Prefer

P2. Did you prefer the online shopping to traditional shopping?

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
P3. Did you think the information provided on shopping website was reliable?
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

P4. Did you think the products bought on the Internet may have the same quality with those bought in a traditional way?
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

P5. Did you think most people have lived up to their words?
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

P6. Did you think caution should be taken to get along with the strangers?
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
P7. Did you think most people are selfish?
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

P8. Did you believe the human nature is innately good?
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

C.1 What was the influence of manufacturer’s size on your online shopping?
- Not at all Important
- Very Unimportant
- Somewhat Unimportant
- Neither Important nor Unimportant
- Somewhat Important
- Very Important
- Extremely Important

C2. During online shopping, did you only choose the manufacturer of enormous potentiality?
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
C3. During online shopping, did you only choose the manufacturer with high market shares?
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

C4. What was the influence of manufacturer's reputation on your online shopping?
- Not at all Important
- Very Unimportant
- Somewhat Unimportant
- Neither Important nor Unimportant
- Somewhat Important
- Very Important
- Extremely Important

C5. During online shopping, did you only choose the manufacturer with high advertising frequency?
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
C6. During online shopping, did you only choose the manufacturer with better reputation?
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

W1. What did you think of the influence of website reputation on online shopping (the larger the score is, the greater the influence is, and vice versa)?
- Not at all Important
- Very Unimportant
- Somewhat Unimportant
- Neither Important nor Unimportant
- Somewhat Important
- Very Important
- Extremely Important

W2. What did you think of the influence of shopping website with good reputation on online shopping?
- Not at all Important
- Very Unimportant
- Somewhat Unimportant
- Neither Important nor Unimportant
- Somewhat Important
- Very Important
- Extremely Important
W3. What did you think of the influence of shopping website with high popularity on online shopping?
- Not at all Important
- Very Unimportant
- Somewhat Unimportant
- Neither Important nor Unimportant
- Somewhat Important
- Very Important
- Extremely Important

W4. What did you think of the influence of shopping website with convenient design on online shopping?
- Not at all Important
- Very Unimportant
- Somewhat Unimportant
- Neither Important nor Unimportant
- Somewhat Important
- Very Important
- Extremely Important

T1. If there was a neutral and objective third-party organization giving credit rating to websites, did it influence your trust on Internet?
- Very Useless
- Useless
- Somewhat Useless
- Neutral
- Somewhat Useful
- Useful
- Very Useful
T2. Did you think the dishonest behaviors of website can be greatly reduced due to the existence of third-party organization?

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

T3. When browsing the shopping website, did you notice its certification of third-party organization?

- Never
- Rarely
- Sometimes
- Most of the Time
- Always

T4. If the shopping website has a certification of third-party organization, did you deem it as reliable?

- Unbelievable
- Somewhat Unbelievable
- Not Sure
- Somewhat Believable
- Believable

T5. Did you have a strong sense of identity for certification of specific third-party organization?

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
T6. Did you think your trust level would be affected by the certification of different third-party organizations?

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

T7. Was your trust on shopping website affected by different modes of presentation of third-party certification?

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
T8. Please give your scores within 1 to 10 according to your familiarity with presentation icons of following third parties. The higher scores signify that you are more familiar with this certification, and vice versa.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image: Truste corp logo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image: Static logo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image: Cardstyle-master</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image: Sbanner d6b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image: 0156782c 6b71 43aa  aa80 7fa1c6987c96</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image: Seal logo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image: Comodo secure padlock</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image: Certified volusion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image: Rapidssl seal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image: Logo web</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image: Experian hitwise 2010 no1 website annual</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
T9. Please give your scores within 1 to 10 according to your trust on presentation icons of following third parties. The higher scores signify that you are more reliant on this certification, and vice versa.

<table>
<thead>
<tr>
<th>Image:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truste corp logo</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
</tr>
<tr>
<td>Static logo</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
</tr>
<tr>
<td>Cardstyle-master</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
</tr>
<tr>
<td>Sbanner d6b</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
</tr>
<tr>
<td>0156782c 6b71 43aa aa80 7fa1c6987c96</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
</tr>
<tr>
<td>Seal logo</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
</tr>
<tr>
<td>Comodo secure padlock</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
</tr>
<tr>
<td>Certified volusion</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
</tr>
<tr>
<td>Rapidssl seal</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
</tr>
<tr>
<td>Logo web</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
</tr>
<tr>
<td>Experian hitwise 2010 no1 website annual</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
<td>🔄</td>
</tr>
</tbody>
</table>
T10. Please rank the following modes of presentation. The higher the reliability is, the higher the rank is.

- Display Logo
- Text Description
- Web Link of Third-party Certification
- Detailed Report of Third-party Certification

P1. You think the public opinions are of significant reference values in establishment of trust relationship.
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

P2. You think the quality of public opinions is an important criteria to evaluate the message.
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

P3. You think the recent comments are more convincing than previous comments.
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
P4. Please rank the influence of other customers' comments on you within the following period (the period within which you are influenced most will get the higher scores):

_____ In recent days
_____ In recent weeks
_____ In recent months
_____ in the last 3 months
_____ In the last 6 months
_____ In the last year
_____ More than a year

P5. You think the access to comments of other customers will have an influence on your building of online shopping trust.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

P6. You think different channels to obtain comments will have different influences on trust.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
P7. During the shopping, your trust on seller may be affected by comments of relatives, friends, colleagues or others written on social network (such as Weibo, live chat and blog).

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

P8. Please rank the following modes of information acquisition according to their influence on trust (the larger the score is, the greater the influence is, and vice versa):

- Comments on dealers' website
- Comments on third-party sales platform
- Comments on third-party assessment and evaluation website
- Comments on social network platform

P9. You think the reliability of public opinions is of significance.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

P10. You think the diversity of public opinions has a great impact on building of trust.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
P11. You think the information from public opinions is easy to understand, and has important influence on your acceptance.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

P12. Please rank the modes of presentation of following public opinions according to their influence on your building of trust (the larger the score is, the greater the influence is, and vice versa):

- Brief tag description
- Plain text description
- Multi-media presentation (such as pictures and videos)

P13. Please evaluate the measurement index of public opinions:

<table>
<thead>
<tr>
<th></th>
<th>Not at all Important</th>
<th>Very Unimportant</th>
<th>Somewhat Unimportant</th>
<th>Neither Important nor Unimportant</th>
<th>Somewhat Important</th>
<th>Very Important</th>
<th>Extremely Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of words</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Release time</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Logicality of contents</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Details of contents</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Mode of presentation (such as pictures and video)</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
TP1. What did you think of the influence of safety of payment via shopping website on online shopping?
- Not at all Important
- Very Unimportant
- Somewhat Unimportant
- Neither Important nor Unimportant
- Somewhat Important
- Very Important
- Extremely Important

TP2. Provided that the safety measures provided by shopping website can protect consumers against damages, whether did it influence your online shopping?
- Not at all Important
- Very Unimportant
- Somewhat Unimportant
- Neither Important nor Unimportant
- Somewhat Important
- Very Important
- Extremely Important

TP3. Provided that the shopping website can protect consumers' privacy, whether did it influence your online shopping?
- Not at all Important
- Very Unimportant
- Somewhat Unimportant
- Neither Important nor Unimportant
- Somewhat Important
- Very Important
- Extremely Important
TP4. Whether did other consumers' comments on shopping website influence your online shopping?
- Not at all Important
- Very Unimportant
- Somewhat Unimportant
- Neither Important nor Unimportant
- Somewhat Important
- Very Important
- Extremely Important

PA1. Shopping over the Internet would enhance my effectiveness at shopping.
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

PA2. Shopping over the Internet fits into my shopping style.
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

PA3. Shopping over the Internet would increase my shopping productivity.
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
PA4. Shopping over the Internet would be expensive since it would require me to pay for access to the Internet.
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

PA5. Before deciding whether to shop over the Internet, I was able to properly try it out.
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

PA6. I would trust online vendors enough to feel safe shopping over the Internet.
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree

PA7. Shopping over the Internet would be very risky.
- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Agree
- Strongly Agree
PA8. I would trust a online vendor with transmitting personal information necessary for me to shop over the Internet.

○ Strongly Disagree
○ Disagree
○ Somewhat Disagree
○ Neither Agree nor Disagree
○ Somewhat Agree
○ Agree
○ Strongly Agree

PA9. Shopping over the Internet would give me greater control over my shopping.

○ Strongly Disagree
○ Disagree
○ Somewhat Disagree
○ Neither Agree nor Disagree
○ Somewhat Agree
○ Agree
○ Strongly Agree

PA10. I believe I could communicate to others the consequences of shopping over the Internet.

○ Strongly Disagree
○ Disagree
○ Somewhat Disagree
○ Neither Agree nor Disagree
○ Somewhat Agree
○ Agree
○ Strongly Agree

These nest questions are about you and your household and will just be used to divide our survey into groups.

G1. What is your gender?

○ Male
○ Female
G2. Which of the following best describes your age?
- 18 to 19
- 20 to 24
- 25 to 29
- 30 to 34
- 35 to 39
- 40 to 44
- 45 to 49
- 50 to 54
- 55 to 59
- 60 to 64
- 65 to 69
- 70 or older

G3. What was the last grade of school you completed?
- Some High School or less
- High School Graduate
- Some College/Technical School
- College Graduate or higher

G4. Which of the following best describes your household's total yearly income before taxes?
- Under $20,000
- $20,000 - $29,999
- $30,000 - $49,999
- $50,000 - $74,999
- $75,000 - $99,999
- $100,000 or over
- No Answer
APPENDIX K - QUESTIONNAIRE IN EXPERIMENT

Proposed Technique:

Posttest-Only Control Group Design, it does not involve any premeasurement. It may be symbolized as

\[
\begin{align*}
\text{EG:} & \quad R \quad X \quad O_1 \\
\text{CG:} & \quad R \quad O_2
\end{align*}
\]

The treatment effect is obtained by

\[ TE = O_1 - O_2 \]

This design is fairly simple to implement. Because there is no premeasurement, the testing effects are eliminated. It is assumed that the two groups are similar in terms of pretreatment measures on the dependent variable, because of the random assignment of test units to groups. On the other hand, this design possesses significant advantages in terms of time, cost, and sample size requirements. It involves only two groups and only one measurement per group. Because of its simplicity, the posttest-only control group design is probably the most popular in marketing research.

In the context of measuring the effectiveness of different channel of online review, for example, Channel of SNS-based Public Opinion, a pretest-posttest control group design would be implemented as follows. A sample of respondents would be selected at random. Half of these would be randomly assigned to the experimental group, and the other half would form the control group. Respondents in both groups would be administered a questionnaire to obtain a pretest measurement on attitudes toward online travel website. Only the respondents in the experimental group would be exposed to the online travel store
containing the test channel of public opinion. Then, a questionnaire would be administered to respondents in both groups to obtain posttest measures on attitudes toward the online travel website.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intentions to</td>
<td>INT1 - If you were to purchase *** the probability of purchasing online would be...(estimation)</td>
</tr>
<tr>
<td>Purchase Online</td>
<td>INT2 - I expect to purchase *** online in the near future (intention).</td>
</tr>
<tr>
<td>Attitude</td>
<td>ATT1 - Online shopping is a good idea.</td>
</tr>
<tr>
<td></td>
<td>ATT2 - Online shopping is a wise idea.</td>
</tr>
<tr>
<td></td>
<td>ATT3 - I like the idea of purchasing *** online.</td>
</tr>
<tr>
<td></td>
<td>ATT4 - Purchasing *** online would be pleasant.</td>
</tr>
<tr>
<td></td>
<td>ATT5 - Purchasing *** online is appealing</td>
</tr>
<tr>
<td>Communicability</td>
<td>COMM1 - I have heard about people purchasing *** online many times.</td>
</tr>
<tr>
<td></td>
<td>COMM2 - Purchasing *** online many times.</td>
</tr>
<tr>
<td></td>
<td>COMM3 - Many friends have purchased *** online.</td>
</tr>
<tr>
<td></td>
<td>COMM4 - It is common for people to purchase *** online.</td>
</tr>
<tr>
<td>Trust</td>
<td>TRU1 - The chance of having a technical failure in an online transaction is quite small.</td>
</tr>
<tr>
<td></td>
<td>TRU2 - I believe most e-commerce web sites will perform to the utmost of the customers' benefit.</td>
</tr>
<tr>
<td>TRU3</td>
<td>I believe online shopping sites are trustworthy.</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>TRU4</td>
<td>Internet shopping is unreliable. (R)</td>
</tr>
<tr>
<td>TRU5</td>
<td>Internet shopping cannot be trusted, there are too many uncertainties. (R)</td>
</tr>
</tbody>
</table>

**Risk**

<table>
<thead>
<tr>
<th>RISK1</th>
<th>I do not feel comfortable giving out credit card information to make a transaction over the Internet.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RISK2</td>
<td>I feel apprehensive about purchasing online.</td>
</tr>
<tr>
<td>RISK3</td>
<td>Purchasing *** online is risky.</td>
</tr>
<tr>
<td>RISK4</td>
<td>There is too much uncertainty associated with purchasing *** online.</td>
</tr>
<tr>
<td>RISK5</td>
<td>Compared with other methods of purchasing, shopping online is riskier.</td>
</tr>
</tbody>
</table>
APPENDIX L - EXPERIMENT

Experiment

Dear All,

We would like to invite you to participate in a research study conducted by the School of Computing and Information Technology (SCIT) at the University of Wollongong. The research is entitled *A Trust Model for Trust Establishment and Maintenance in Business-to-Consumer E-Commerce*. We seek your approval and assistance to conduct this research. The main purpose of this research is to reveal the specific factors influencing the consumers’ online trust under the current market environment in Australia, and to give reasonable explanations for the role of each factor.

**Part One**
Please click the following website links to review the online travel agency (Our World Travel), and complete the short online survey within 10 minutes.
Online Travel Agency: [https://goo.gl/j0OWC7](https://goo.gl/j0OWC7)

**Part Two**
Please click the following website links to review the online travel agency (My Holiday Centre), and complete the short online survey within 10 minutes.
Online Travel Agency: [https://goo.gl/txui3w](https://goo.gl/txui3w)

**Part Three**
Please click the following website links to review the online travel agency (Tripadeal), also click the third part travel agency review website, and complete the short online survey within 10 minutes.
Online Travel Agency: [https://goo.gl/ol123v](https://goo.gl/ol123v)

**Part Four**
Please click the following website links to review the online travel agency (Peterpan's Adventure Travel), also please review their social network comments, and complete the short online survey within 10 minutes.
Online Travel Agency: [https://goo.gl/i9KHuy](https://goo.gl/i9KHuy)
Facebook: https://www.facebook.com/pg/peterpansrocks/reviews/?ref=page_internal
Twitter: https://twitter.com/peterpans_aus
Instagram: https://www.instagram.com/peterpanstravel/
Youtube: https://www.youtube.com/user/PeterpansAustralia
Online Survey: http://bit.ly/2r7VCBV
APPENDIX M - EXPERIMENT WEBPAGE FOR CHAPTER SIX
APPENDIX N - EXPERIMENT WEBPAGE FOR CHAPTER NINE
GLOSSARY

**10 times rules**: one way to determine the minimum sample size specific to the PLS path model that one needs for model estimation (i.e., 10 times the number of independent variables of the most complex OLS regression in the structural or formative measurement model).

**Accuracy**: measures the degree of accuracy of reviews of products or services as expressed by online review information.

**Agent-based online reviews**: the site for the posting and exchange of online reviews belongs to an independent third party, such as a third-party sales platform or review agent; the seller of the product does not retain ownership of the information.

**Average variance extracted (AVE)**: a measure of convergent validity. It is the degree to which a latent construct explains the variance of its indicators;

**Behaviour to trust**: When entity A voluntarily depends on entity B.

**Bootstrap sample**: are the numbers of samples drawn in the bootstrapping procedure. Generally, 5,000 or more samples are recommended.

**Bootstrapping**: is a resampling technique that draws a large number of subsamples from the original data (with replacement) and estimates models for each subsample.

**Certification service**: refers to security, privacy, and quality certification services provided to enterprises by TTP. It mainly includes various service and quality certification agencies, accreditation agencies, some law firms, accounting firms, and auditing firms.

**Channel**: refers to a medium through which the information is obtained or transferred when it moves from the distributor to the recipient.

**Coefficient of determination \((R^2)\)**: a measure of the proportion of an endogenous
construct’s variance that is explained by its predictor constructs.

**Completeness:** refers to the extent to which all the necessary information is provided in online reviews.

**Composite reliability:** a measure of internal consistency reliability, which, unlike Cronbach’s alpha, does not assume equal indicator loadings.

** Constructs:** measure concepts that are abstract, complex, and cannot be directly observed by means of (multiple) items.

**Credibility:** refers to the trustworthiness of a reviewer, which can reflect their professional competence and expertise.

**Credit obstacle:** refers to the ineffective transfer of an online retailer’s credit information to the consumers because of information being blocked.

**Credit Risk:** refers to the risk of inflicting losses to consumers because the online retailer adopts a strategy of dishonesty.

**Cronbach’s alpha:** a measure of internal consistency reliability that assumes equal indicator loadings.

**Cross-loadings:** an indicator’s correlation with other constructs in the model.

**Currency:** measures the difference between the time reviewers post the online reviews and when the consumers read them.

**Format:** represents consumers’ opinions of the effect of information presentation.

**Fornell-Larcker criterion:** a measure of discriminant validity that compares the square root of each construct’s average variance extracted with its correlations with all other constructs in the model.

**Indicator reliability:** is the square of a standardized indicator’s outer loading. It represents how much of the variation in an item is explained by the construct and is referred
to as the variance extracted from the item.

**Insurance service:** refers to various online transaction guarantees and insurance services provided by TTP. It mainly includes financial enterprises that provide compensation for logistics distribution, commodity damage, and commodity rejection.

**Intention to trust:** When entity A is happy to depend on entity B.

**Logistics service:** refers to goods transportation services provided by TTP during online transactions. It mainly includes postal logistics systems and third-party logistics enterprises.

**Measurement model:** is an element of a path model that contains the indicators and their relationships with the constructs.

**Minimum sample size:** is the number of observations needed to represent the underlying population and to meet the technical requirements of the multivariate analysis method used.

**Multigroup analysis:** is a type of moderator analysis where the moderator variable is categorical (usually with two categories) and is assumed to potentially affect all relationships in the structural model; it tests whether parameters (mostly path coefficients) differ significantly between two groups.

**Online reviews:** as opinions and perceptions of products or services, buying experience and relevant companies posted by consumers on online shopping websites or other network media such as other review websites, forums, social network websites, blogs, microblogs and instant messaging tools. This perception of consumers may be positive or negative, and derive from their personal experience or the experience of others (such as family members, friends or colleagues).

**Partial least squares multi-group analysis (PLS-MGA):** is a bootstrap-based multigroup analysis technique that further improves Henseler’s MGA.
Partial least squares structural equation modelling (PLS-SEM): is a variance-based method to estimate structural equation models.

Payment service: refers to financial business handled by TTP during the online transaction process. It mainly includes banks, credit card organizations, third-party payment institutions, and other financial institutions.

Personal attitude: refers to consumers’ positive or negative feelings of trust in online retailers.

Propensity to trust: when people naturally tend to trust entity A.

Recommendation service: refers to product evaluations, user experience descriptions, and related services provided by TTP. It mainly includes professional product use and evaluation companies, industry associations, and company rating and recommendation agencies.

Reliability: is the consistency of a measure.

Reputation: represents an expectation of the future behaviour of the entity based on the information or observation for the past actions of the entity.

Seller-based online reviews: the site for posting and exchange of the reviews belongs to the seller, and the seller reserves ownership of review information released in this environment.

SNS-based online reviews: the exchange of online reviews mainly occurs in the social network environment, such as social media websites, blogs, microblogs, instant messaging tools and other network media; information distributors reserve ownership and modification rights of such information.

Structural equation modelling (SEM): is used to measure relationships between latent variables.

Structural model: represents the theoretical or conceptual element of the path model.
**Trust model:** is an abstract description refined for understanding the trust behaviour of consumers and the process of trust decision making.

**Trusted third party (TTP):** refers to third-party economic entities that mainly aim at overcoming credit obstacles and credit risks of the virtual market, improving awareness of overall credit information and the reliability of the market, forming a good credit culture in the virtual market, expanding online transaction volumes and promoting the ongoing development of e-commerce.

**Validity:** is the extent to which a construct’s indicators jointly measure what they are supposed to measure.

**Volume:** refers to the quantity of reviews on some products or services.